

In the Name of God

# **Contrastive Analysis of English- Persian Intonation**

**by**

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## Table of Contents

<b>Introduction-----</b>	<b>4</b>
<b>Significance of Contrastive Analysis in ESL classrooms</b>	
<b>Chapter one-----</b>	<b>6</b>
<b>Word Definition</b>	
<b>What is the difference between “Farsi” and “Persian”?</b>	
<b>What is intonation?</b>	
<b>What is Prosody ?</b>	
<b>What is a Tone Unit?</b>	
<b>What are tonetic stress marks ?</b>	
<b>What is f0?</b>	
<b>What are functions of intonation?</b>	
<b>What are the different types of tone?</b>	
<b>What is pitch and pitch level?</b>	
<b>What is focus?</b>	
<b>How is focus marked in Farsi?</b>	
<b>Chapter Two-----</b>	<b>29</b>
<b>How to study Intonation</b>	
<b>1-The harmonic of the voice</b>	
<b>2-The pitch of the voice</b>	
<b>3-The interval between the pitch Levels</b>	
<b>Chapter Three-----</b>	<b>34</b>
<b>Persian Intonation</b>	
<b>An Investigation of Farsi Intonation patterns</b>	
<b>Declarative Sentences</b>	

## **Types of Declarative Sentences**

### **Declaratives with Focus**

### **Interrogatives**

### **Yes/No Questions**

### **Wh-Questions**

### **Focus in Wh-Questions**

### **Imperative Sentences**

### **Exclamatory Sentences**

### **Declarative Exclamations**

## **Chapter Four-----75**

### **English Intonation**

## **Summary statement-----79**

### **Contrasting English Intonation patterns with Persian**

## **Reference-----80**

## **Introduction**

### **Significance of Contrastive Analysis in ESL classrooms**

A person who understands Persian can enter a crowded bus in New York and among the passengers' chatter can recognize that the people three rows back are speaking Persian even though he may not actually overhear any single word clearly enough to say what the people are talking about. It's because Persian like all other languages has its own distinctive melodies and rhythms.

Mastery of stress and intonation of any language needs active training because when learning a foreign language we tend to transfer the entire native language system in the process. We tend to transfer to that language our phonemes and their variants, our stress and rhythm patterns, our transitions, our intonation patterns and their interactions with other phonemes.

Much less known and often not even suspected is that the speaker of one language listening to another does not actually hear the foreign language sound unit- phonemes. He hears his own. Phonemic differences in the foreign language will be constantly missed by him if there is no similar phonemic differences in his native language. (Lado, 1971, 11)

That causes the ridiculous situation of an ESL classroom where the teacher says a sentence in English intonations but students repeat after him/her with their own native language intonation. The teacher repeats

again to correct them but the students find the repetitions redundant and boring. They don't even get the point of those repetitions.

We now see more clearly the need for comparing the native and foreign sound systems as a means of predicting and describing the pronunciation problems of Persian language learners of English.

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## Chapter one

### Word Definition

#### ► What is the difference between “Farsi” and “Persian”?

"Farsi" (an Arabic adaptation of the word "Parsi"), is another name of the Persian language. Just as the German speaking people refer to their language as 'Deutsch', the Greek 'Ellinika' and the Spanish 'Espanol', the Persians use 'Farsi' or 'Parsi' to identify their native form of verbal communication.

The Academy of the Persian Language and Literature (Farhangestan) in Tehran has also delivered a pronouncement on this matter and rejected any usage of the word "Farsi" instead of Persian/Persa/Persane/Persisch in the Western languages. The first paragraph of the pronouncement states: "PERSIAN has been used in a variety of publications including cultural, scientific and diplomatic documents for centuries and, therefore, it connotes a very significant historical and cultural meaning. Hence, changing 'Persian' to 'Farsi' is to negate this established important precedence. Changing 'Persian' to 'Farsi' may give the impression that it is a new language, and this may well be the intention of some Farsi users" Fortunately all international broadcasting radios with Persian language service (e.g. VOA, BBC, DW, RFE/RL, etc.) use "Persian Service", in lieu of the incorrect "Farsi Service." That is also the case for the

American Association of Teachers of Persian, The Centre for Promotion of Persian Language and Literature, and several American and European notable universities.

Some mistakenly believe that, in English, the official language of Iran should be called "Farsi," while the language spoken in Tajikistan or Afghanistan should be labeled as "Dari," and "Persian" should be utilized to refer to all of them! However, the difference between the Persian spoken in Iran, Afghanistan, or Tajikistan is not significant and substantial enough to warrant such a distinction and classification.

Persians, Tajiks or Afghans can converse in Persian and easily understand each other.

Since 600 BC, Greeks used the name "Persis" for Persia/Iran. Persis was taken from "Pars" (the name of the region where the Persian rulers lived). Persian people likewise used the name of "Younaan" (instead of internal term of "Hellas") for Greece. "Younan" in fact is taken from the name of "Lonia", in the south-east of Greece. "Persis" since then has been used as the name of Iran in all European documents, maps, etc. Only in later centuries did some Europeans (in view of their languages) changed it to "Persia" (English, Italian and Spanish), "La Perse" (French), "Persien" (German), etc. The name "Persia" until 1935 was the official name of Iran in the world, but Persian people inside their country since the Sassanian

period have called it "Iran" meaning "the land of Aryans". They also used "Parsa" in the Achaemenids period.

In 1935, Reza Shah announced that all Western countries should use the name of "Iran" in their languages too. This act brought cultural damage to the country and separated Iran from its past in the West. Also, many people confused it with Iraq (an Arab state West of Iran). For many westerners, "Persia" became a dead empire that does not exist anymore. After some Persian scholars protested this announcement, in 1959 Prof. Ehsan Yarshater made a committee to research this matter. The committee announced that "changing the name has not been right", so Mohammad Reza Shah announced that both 'Persia' and 'Iran' can be used interchangeably. (Akbarzadeh, 2005)

### ► What is intonation?

In Farsi, intonation is translated as “sentence music” (Samareh, 1984, 220). When speaking, people generally raise and lower the pitch of their voices and form pitch patterns. They also give some syllables a greater degree of loudness and change their speech rhythm. These phenomena are called intonation. Intonation does not happen at random but has definite patterns which can be analyzed according to their structure and functions.

Intonation patterns often differ between languages or even between varieties of the same language, e.g. between Australian English and

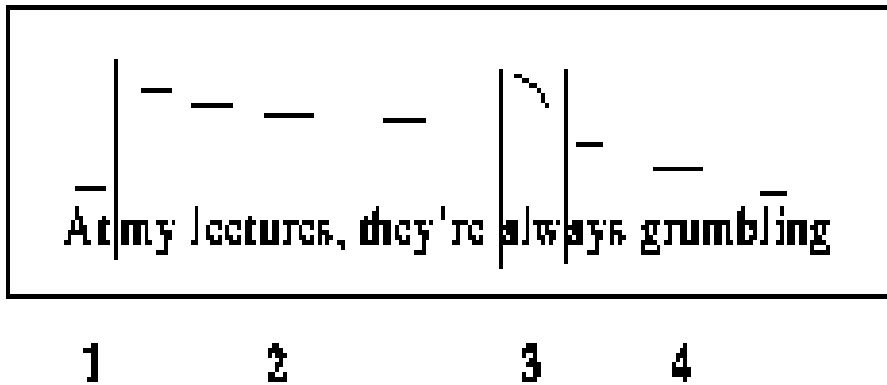


American English. In some communities there is a difference in the intonation patterns of different age groups or sexes. (Richards, 1987, 148)

A more technical definition of intonation would be "the variations which take place in the pitch of the voice in connected speech, i.e. the variations in the pitch of the musical note produced by vibration of the vocal cords."

(Jones, 1960)

O'Connor and Arnold (1973) divided intonation groups into four parts:



1. The *pre-head* - all the initial unaccented syllables. (At)
2. The *head* - between the pre-head and the nucleus. (my lectures, they're)
3. The *nucleus* - the main accented syllable. (alw-)
4. The *tail* - all the syllables after the nucleus. (ays grumbling)

### ► What is Prosody ?

As John S Coleman (2005) states prosody is features (or groups of features) not located at a single place in the sequence of consonants and vowels (e.g. stress, tone) determine the prosody. So Virtually anything can be prosody! Some examples:

- 1- (groups of) features associated with a whole syllable, word or phrase.

2-Or features of the *boundaries* of syllables and words (e.g. assimilation, linking, absence vs. presence of initial [h] in the 'to him/her' examples above). '*Grenzsignale*'.

3) Place of articulation (cf. place assimilation at word-junctures).

4) Manner of articulation (cf. initial consonant mutation e.g. in Welsh), including ...

5) Degree of stricture (e.g. spirantization of final stops as a boundary feature)

6) Voicing (cf. voicing assimilation at word-junctures and in initial mutation)

7) Retroflexion (e.g. Sanskrit)

8) Frontness and backness (e.g. umlaut, vowel harmony)

9) Openness and closeness (e.g. vowel harmony)

10) Centrality and peripherality (cf. English stress above).

11) Aspiration, whisper (cf. stress above, Sanskrit). In English [h] may only occur once in a word. Apparent exceptions like *jojoba* are loan-words.

12) Nasality e.g. in Terena, Sundanese, and in the Urhobo examples in previous handouts.

13) Glottality (e.g. [ʔ] in vowel-initial words in English or German, Danish *stød*).

14) Lip-rounding (vowel harmony; cf. also discussion of stress above).

► **What is a Tone Unit?** **Tone** refers to significant (i.e. meaningful, contrastive, phonemic) contrasts between words signaled by pitch differences. Tone may be **lexical**, as in Mandarin Chinese:

<i>Tone number</i>	<i>Description</i>	<i>IPA transcription example</i>	<i>Meaning</i>
1	high level	[má]	`mother'
2	high rising	[m <sup>˥</sup> á]	`hemp'
3	low (falling+)rising	[mǎá]	`horse'
4	high fall	[mâ]	`scold'
"no tone/neutral tone"	(depends on preceding syllable)	[ma]	(question marker)

Or **grammatical** tone, as in many African languages, e.g. Edo:

<i>Tense</i>	<i>Monosyllabic verbs</i>	<i>Disyllabic verbs</i>
Timeless	[i mà] `I show'	[i hrùlè] `I run'
Continuous	[í mà] `I am showing'	[í hrùlé] `I am running'
Past	[i má] `I showed'	[i hrúlè] `I ran'

However, as with stress, there may also be non-pitch aspects of tone.

Lexical tones are often related to durational, phonatory and vowel quality distinctions as well as frequency distinctions. For example, Mandarin Chinese tone 3 (low rise) is long with creaky voice, Hunanese tone 2 has

breathy or chesty voice. Tibetan tone 1 words have voiceless initial consonants whereas tone 2 words have voiced beginnings. Long vowels in tone 4 or 5 open syllables in Thai are checked by a final glottal stop. (Coleman,2005)

In Persian sometimes we can make a distinction between different tones:

Mahi (rising tone) means “fish”

Mahi (fall- rise tone) means “month”

Mahi (falling tone) means “you are splendid”

Or:

Tarkesh (rising tone) means gunshot

Tarkesh (fall-rise) means on its back

Tarkesh (falling tone) means leave him/her

Or:

Sazesh (rising tone) means his/her musical instrument

Sazesh (falling tone) means coping

Or

Shooresh ( rising tone) means rebellion

Shooresh ( falling tone) means (make ) it salty

Tone unit or tone group is the basic unit of intonation in a language. A tone unit is usually divided into several parts. The most important part contains the syllable on which a change of pitch begins the tonic syllable. The way in which linguists have divided the tone unit into its different

parts and the terms they have used for these parts are not always the same. The simplified table-1 shows the main parts of a tone unit together with different divisions and terms used to define it.

Example	That's	a	Very long sto-	-ry
	Unstressed syllables	Onset first stressed syllable	Tonic syllable where pitch movement begins	Continuation and completion pitch movement
Theories				
Crystal (1969)	prehead	head	nucleus	tail
Holliday (1970)	Pretonic	Pretonic	Tonic	Tonic
Brazil (1980)	Proclitic	Proclitic	Tonic segmaent	Enclitic segment

*Table 1: The main parts of a tone unit together with different divisions and terms used to define it*

Where the first syllable of “very” is the “onset”, the first prominent syllable in the tone unit and the first syllable of “story” is the tonic syllable. Here the pitch of the speaker’s voice begins to fall. Some linguists refer to a tone unit as an intonation contour.

Pierrehumbert is another linguist who introduced the concept of Intonation Phrase to describe a tone unit. He used some signs to explain intonation:

**L\* + H-** "Scoop". A low tone with sharp rise to a high peak.

**L- + H\*** "Rising peak". A high peak preceded by a sharp rise from a valley in the lowest part of the pitch range.

**H\* + L-** A H\* that induces following downstep. (Abandoned since Silverman et al. 1992).

**H- + L\*** Downstepped H that induces downstep on later H's.

Characteristic of catathesis e.g.

**I really believe Ebemexer is a dealer in magnesium**

|            |            |            |            |  
 H\*    H- + L\*   H- + L\*   H- + L\*   H- + L\*   L-   L%

**H\* + H-** (Abandoned after Liberman and Pierrehumbert 1984).

Each English intonational phrase, then, has the following structure:

Optional initial boundary tone: one of	One or more pitch accents: one of	A phrase accent: one of	A final boundary tone: one of
H%	H*	H-	H%
L%	L*	L-	L%
None	L* + H-		
	L- + H*		
	H- + L*		

Pierrehumbert (1980) characterized this structure by a finite-state transition network. The advantage of Pierrehumbert's model over the previous models is delineated by Walters (2003):

“The nuclear segment theory abandons the traditional tone-unit theory notion of ‘nucleus’ as being the ‘phonetically the most salient’ prominence (Halliday, 1967, p.14; Crystal, 1969, p.205) or ‘main focus of information’ (Halliday, 1967, p.22; Gussenhoven, 1986, p.78) in a tone-unit. It maintains, instead, that such a ‘nucleus’ or ‘tonic’ can be viewed as a conflation of two separate elements (1) the final accent of the tone-unit with an information focusing / highlighting role and (2) the ‘terminal tone’, which is the final single pitch movement of the IP (falling, rising or level).

The example ‘*only the fight mind*’ (Figure 2) is taken from an auditory experiment reported in Walters’ study (1999, pp.220-244), in which six intonationalists listened to passages of RVE (a place in Wales) spontaneous conversations. For the utterance in Figure 2, not only auditory clues but the full context of the situation was available to them. As can be seen in the acoustic record in Figure 3, the word ‘*only*’ is phonetically much the most salient word in the IP; and the conversation leading up to it identifies it as the ‘contrastive’ information. With ‘*fight*’ also marked as ‘prominent’ by all six volunteer intonationalists, the familiar dilemma for tone-unit theorists presented itself as to where to

place the nucleus. Their decisions are shown in Figure 2. (‘V1’, ‘V2’ etc. refer to their code-names)

//	IP (Intonation Phrase) Boundary
/	minor demarcation within the IP (cf. intermediate phrases)
<u>mind</u>	stress (underline)
<u>ONLY</u>	accent
H	a contour-point which is higher in pitch than the previous one marked
L	one which is lower
—	pitch movement of 3 – 6 semitones
H*+H	an accent contour; the star denotes the centre of stress.
H%	the final contour-point of the IP
italics	the nuclear segment

*Figure 1: The KEY*

V1,6	/ <u>ONLY</u> the <u>fight</u> mind /	Nucleus on ‘only’
V2,3,5	/ <u>only</u> the <u>FIGHT</u> mind /	Nucleus on ‘fight’
V4	/ <u>ONLY</u> the <u>FIGHT</u> mind /	Two nuclei

*Figure 2. Listener’s different analyses of the phrase ‘only the fight mind’.*

*(underlining = prominences; capitalization = nucleus)*



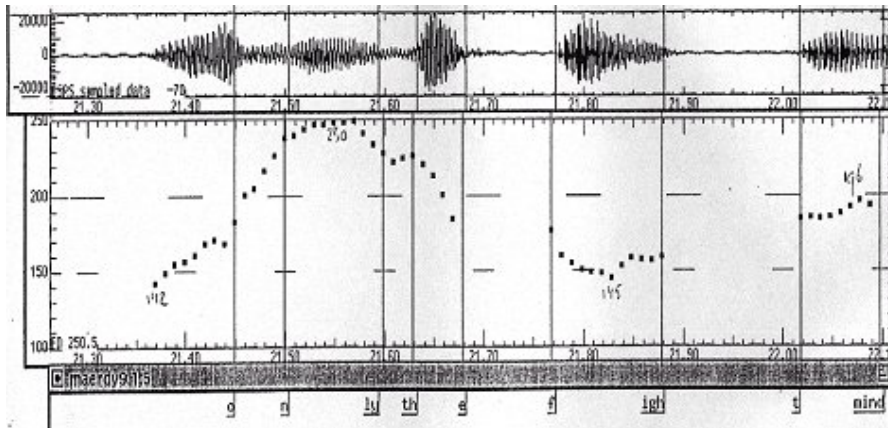


Figure 3. Acoustic record of the phrase 'only the fight mind.'

Abandonment of the traditional notion of nucleus as 'phonetically the most prominent' or 'main focus of information' enables a somewhat more straightforward analysis to be made (Figure 4). In this, one is not forced to choose between 'only' and 'fight' as 'nucleus'. Both of them may be judged to carry accents. The second, on 'fight', begins the 'nuclear segment' of the IP. The nuclear segment also contains the 'terminal tone' (final single pitch movement), which is rising – the rise beginning on 'fight' and finishing on 'mind'.

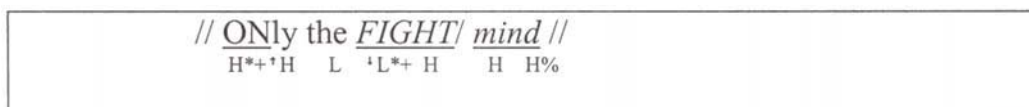


Figure 4. Transcription of 'only the fight mind'

The speaker might well, however, have used a different terminal tone contour on ‘mind’. For example, if he had finished L L% the terminal tone would have been falling. Although the break-down of nuclear segment into ‘final accent’ + ‘terminal tone’ represents a somewhat different theoretical stance from tone-unit theory, cross comparisons can be made: a falling terminal tone would be the same as saying, in tone-unit theory, that a ‘nuclear tone’ is ultimately falling, and a rising terminal tone that it is ultimately rising.

H\*+H

// HE was the SAME . . . //

H\*+H L      H\*+H%

0\*+H

// and the PArry brothers . //

L    H >L\*+H    0    H%

(> = the second L H is down-stepped from the first)

L\*+H

// I was a sup~a GOOD supPORter of CARDiff . //

H    L    H\*+H    H    L\*+H    L    L\*+H%

H\*+L

// more than ONCE a WEEK //

H      0    H\*+H      H\*+L%

L\*+L

// IN the CLUB/ to HEAR the FIGHT //

L\*    H      <L\*    0    H\*+H    0    L\*+L%

(< = the second L is up-stepped from the first)

H\*+H+L

// there was PITS / EVery couple of . VILLages //

L      H\*+H    L\*+H <L    H    0      H\*+H+L%

0\*+H+L

// I spent my BIRTHday/ in Fernhill COLliery . . . //

L    0      0\*+    H    0    0    H    0\*+H+L%

H\*+L+H

// SHOULDn't have a CHILD/ in the CLUB . . . //

L\*+    'H    'L      L\*+H    L      H\*+L+H%

Figure 5. Examples of the contour types occurring in RVE (examples of Persian contour types are presented in pp:68-73)

### ► What are tonetic stress marks ?

Kingdon, O'Connor and Arnold and others employed a variety of diacritic symbols known as *tonetic* stress marks to denote various intonational events. *Accents* were held to be dynamic (contour) tones. The most important accents in English are:

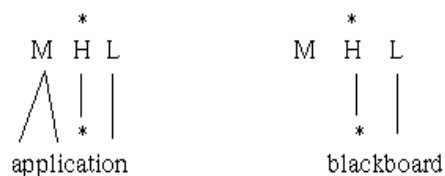
Low fall:	It's raining.
High fall:	Bond had instructions to leave.
Low rise:	Do you like the food?
High rise:	Tomorrow did you say?
(High) fall-rise:	Personally, I loathe it.
(High) rise-fall:	Why should I?

(Current IPA tone marks include: high (level) tone: é, low (level) tone: è, (high) falling tone: ê, rising tone: ˇ)

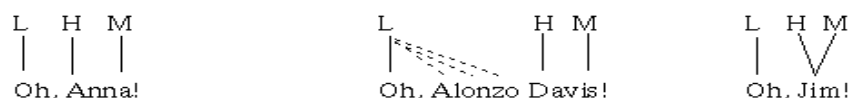
This approach, characteristically of structuralist methodology, concentrates on compendious exemplification and collection of large, annotated, orderly corpora of categorized examples, rather than the formulation of inviolable rules for determining the intonation patterns and their alignment with text. (Russel,2000)

Goldsmith (1981) proposed that English lexical stress could be characterised by a MHL autosegmental melody, in which the H tone

corresponds with the strongest stress, marked with a \*:



Liberman (1975) pursued the same approach to characterise English intonation more generally. For example, he identified a LHM "calling" intonation, in which the H tone docks onto the main stress, and the initial L tone spreads in the usual autosegmental fashion to all pre-stress syllables:



### ► What is $f_0$ ?

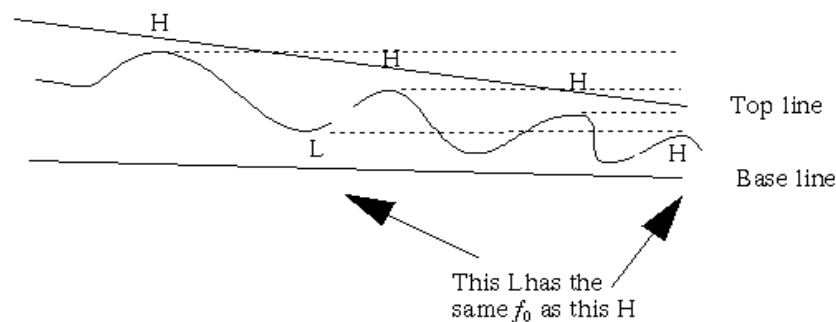
$f_0$  corresponds to rate of vibration of the vocal cords. Therefore,  $f_0$  equals zero during unvoiced speech e.g. during voiceless consonants as well as pauses.

The overall shape of the  $f_0$  contour is under the conscious control of the speaker, but some speech sounds introduce fine-scale "microprosodic" perturbations, often due to aerodynamic factors. In particular, high

vowels tend to raise  $f_0$ ; voiceless obstruents tend to raise  $f_0$  at the start of the following vowel; and voiced consonants and the glottal stop are associated with a drop in  $f_0$ . It is important not to mistake such perturbations for accents.

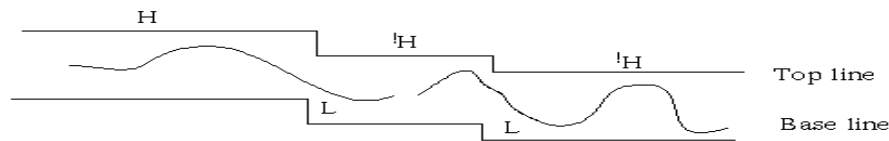
Speakers do not usually use their full pitch range in speech. The actual range may vary e.g. be larger in more animated speech. In addition, speakers may employ a higher or lower "register" within their normal spoken pitch range. In some languages, register appears to be phonological.

A speaker's pitch range may fall or rise during speech, independently of the falls and rises of  $f_0$ :



This phenomenon is called *downdrift* or *declination*.

When the top line appears to step down, rather than gradually drift, we have the related phenomenon of *downstep*, *catathesis* or *tone terracing*:



In tone languages, downstep typically affects H tones after a L. "List

intonation" is similar . Take the intonation of this list as an example:

"Blueberries, bayberries, raspberries, mulberries and brambleberries".

The high-pitched "calling" intonation shows two high peaks.

Pierrehumbert analysed such cases as an instance of downstep, and thus analyzed the first accent as not just a simple H tone, but as a H on the stressed syllable, combined with a L target at the end of the first syllable, which conditions downstep of the following H tone. As in other areas of autosegmental phonology, Pierrehumbert treated dynamic accents as a sequence of two tones (bitonal accents). (Coleman,2005)

## ► What are functions of intonation?

### A. Intonation and syntactic structure

1a) Here's a word you can look *ûp*. ("Up" is a particle.)

b) Here's a chimney you can *lòok up*. ("Up" is a preposition.)

2 a) Bond had instructions to *lèave*. (So he left.)

b) Bond had *instrûctions* to leave. (So he left them.)

In the preceding examples, placement of the accent encodes a difference in syntactic structure. In the following examples, the major intonational

phrase may be broken into two intermediate phrases, to denote a higher syntactic boundary.

3 a) Have you seen any Martians who have green nōses? (One phrase: restrictive relative.)

b) Have you seen any Mârrians, who have green nōses? (Two phrases: non-restrictive relative.)

4 a) He can't see clêarly. (One accent, one phrase.)

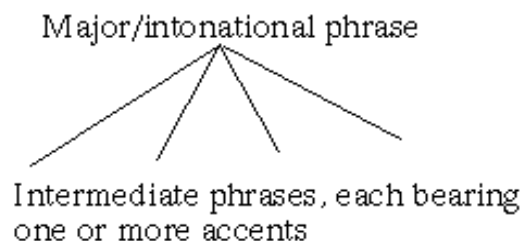
b) He can't sêe, clêarly. (Two accents, two phrases.)

In earlier descriptive studies, this phrasing was regarded as a question of two intonational boundaries:

Word-group boundary: |

Tone-group boundary: ||

In contemporary approaches, intonation is characterized by a constituent structure (the prosodic hierarchy). In its simplest form, this is a simple two level structure:



## B. Intonation and meaning

1 a) John<sub>i</sub> called Bill<sub>j</sub> a Republican, and then hé<sub>j</sub> insulted hîm<sub>i</sub>. (To call someone a Republican is an insult.)

b) John<sub>i</sub> called Bill<sub>j</sub> a Republican, and thén he<sub>i</sub> insûlted him<sub>j</sub>. (To call someone a Republican is not an insult.)

2 a) I didn't go, because my hâir was dirty.

b) I didn't go because my hâir was √dirty. (I went for some other reason.)

### C. Intonation and discourse structure, specifically focus

Refer to "Aren't legumes a lousy source of vitamins?"

A suitable reply to the preface "Legumes aren't good for anything, are they?" Here A, *vitamins* is accented, and hence focussed. Or to answer the question "What's a good source of vitamins?" *legumes* is accented and focused.

### ► What are the different types of tone?

Pierrehumbert distinguished between different types of tonal targets. We have seen various examples of dynamic accents, which are the head elements of intonational phrases. In addition, Pierrehumbert proposed to use H and L **boundary tones** at the beginning and end of major phrases, as well as a H or L **phrase accent** at the end of each intermediate phrase.

Unlike standard autosegmental theory, Pierrehumbert did *not* employ spreading to derive the tone of unaccented syllables, but saw that as a matter of phonetic interpolation between phonologically-specified targets.



In other words, the phonological representation of intonation is phonetically underspecified.

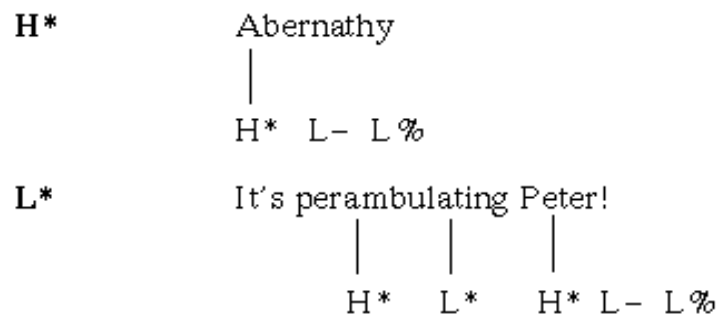
- Phrase accents and boundary tones are edge elements that have a demarcative function.
- Pitch accents are head elements with culminative function.

Pitch accents were marked with a \*

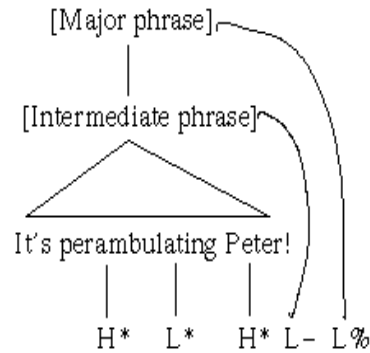
Phrase accents were marked with a -

Boundary tones were marked with a %

\*, - and % are just diacritics, unrelated to  $f_0$  value. They only show how the tone is related to the text.



Phrase accents and boundary tones are not associated to segmental material, like pitch accents, but to prosodic nodes:



► **What is pitch and pitch level?** When we listen to people speaking, we can hear some sounds or group of sounds in their speech to be relatively higher or lower than others. This relative height of speech sounds as perceived by a listener is called pitch. For example, in the English question, "Ready?" meaning "Are you ready?" the second syllable-dy- will be heard as having a higher pitch than the first syllable-rea- though pitch movement upwards will begin on the first syllable-rea-. What we can hear as pitch is produced by the vocal cord vibrations. The faster the vocal cords vibrate, the higher the pitch. For English, three pitch levels have often been recognized: normal pitch level, higher than normal level and lower than normal level. These three levels can not be identified in absolute terms. One person's high pitch will not be the same as another person's high pitch. Differences in pitch level are therefore relative (Richards.1985,220)

Pitch is used in two distinctive ways in languages:

- 1) as part of the word

2) as part of the sentence and phrase

English uses voice pitch as part of the sentence and phrase but not as part of the word.

Chinese, for example, uses voice pitch as part of the word, so Chinese is a tone language. English is an intonation language.

The first problem of comparing the pitch system of two languages will vary depending on whether both the native and foreign languages are intonation languages or one is a tone language, while the other is an intonation language (like the present case).

The second problem is to identify that component of intonation which can be measured and recorded objectively.

► **What is focus?**

The terms *narrow focus* and *broad focus* are used to refer to emphasis triggered by context (e.g., a question that is to be answered) on either a single word (narrow) or a longer phrase (broad).

*Contrastive focus* is a more specific term that refers to emphasis used to explicitly contrast one thing or action with another thing or action in the discourse. Contrastive focus may be either narrow or broad. There may also be a type of focus (or something that looks much like focus) that is *grammatical* or *semantic*. *Grammatical* or *semantic focus* is triggered not by context, but by a syntactic structure or by the semantics of a particular

lexical item. This type of focus will be discussed as well. (Scarborough, 2003)

► **How is focus marked in Farsi?**

A focused word in Farsi has a higher pitch (in fact, generally the highest pitch peak in the Intonation Phrase or IP). Though high F0 for focus is phonetic in many languages (e.g., English and Korean), it may actually be phonological in Farsi. Focused words are also impressionistically louder and longer (though no systematic phonetic measurements have yet been made). A focused word is further marked phonologically by becoming the left head of an accentual phrases or AP with deaccenting and dephrasing of the following words until the end of the IP. The default focus pitch accent type looks very similar to the normal pitch accent type, L+H\*, though the possibilities of analyzing it as L+<sup>^</sup>H\* or L+H\*L will also exist. It will simply be labeled as L+H\*. (Scarborough, 2003)

## Chapter Two

### How to study Intonation

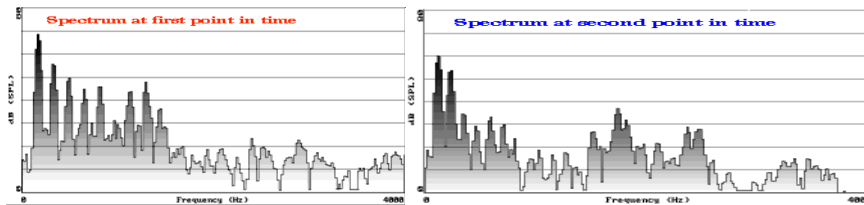
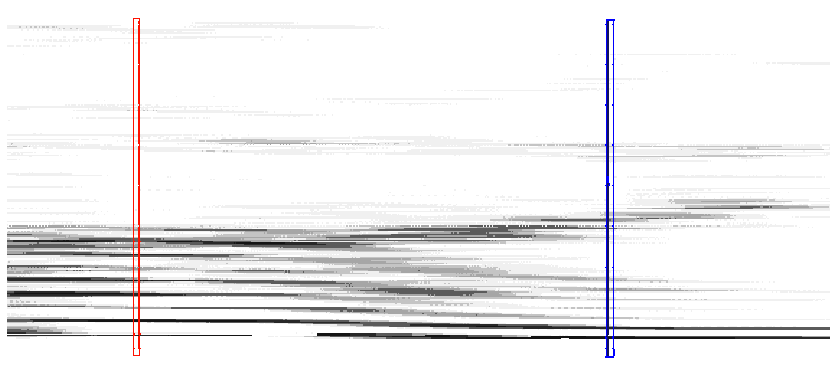
Intonation has been recorded in terms of harmonic , pitch, and interval between pitch levels when we go through related literature.

**1-The harmonic of the voice:** The levels of the pitches is not steady but waves considerably within an utterance, or to put it another way, there are variations within each pitch level as the sentence progresses. These variations within each pitch level seem to correlate in part with variations in stress and with particular sound segments, but have no primary significance in communication.

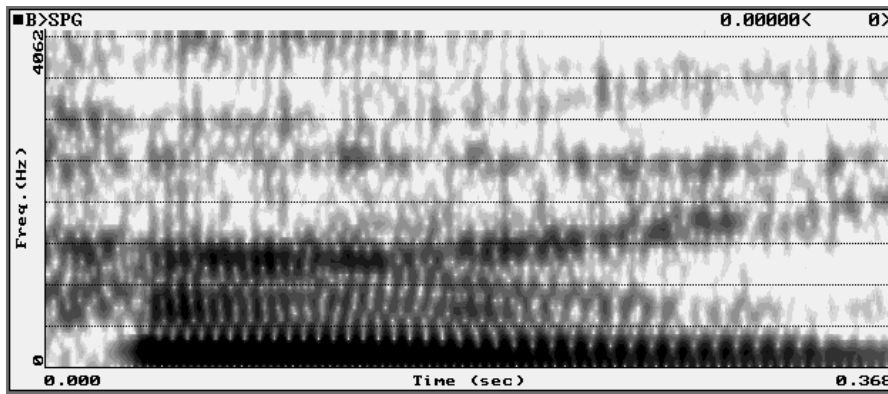
A sound spectrogram can show the harmonics of voice.

Spectrum diagrams are useful for seeing the state of a complex wave during a very short period of time. But in speech, sounds are constantly changing. **Spectrograms** are a convenient way to diagram the changes in a sound's spectrum over time.

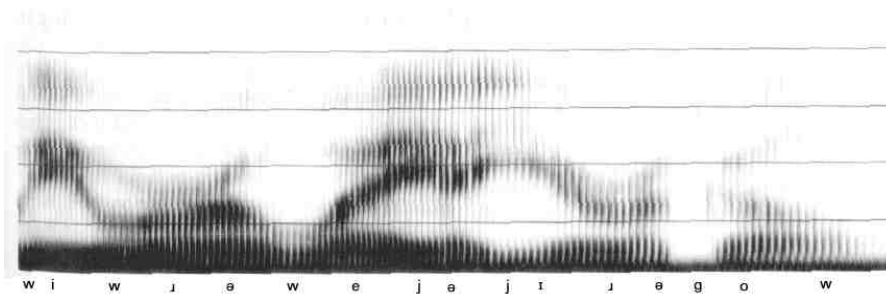
In a spectrogram, the horizontal dimension represents time and the vertical dimension represents frequency. Each thin vertical slice of the spectrogram shows the spectrum during a short period of time, using darkness to stand for amplitude. Darker areas show those frequencies where the simple component waves have high amplitude.



For situations where we are more interested in the frequency response curve of the vocal tract than in raw spectra, we can use "wide band" spectrograms. In these, the dark areas are smeared over a wider area. This often hides the individual harmonics, but it makes formants easier to see - they show up as dark bands.



Spectrograms let us look at, for example, the changing formants in a diphthong. (Russel, 2000)



*The spectrogram of an utterance of the sentence We were away a year ago:*

Professor Peterson.G (1954) gave the following information concerning the spectrographic charts:

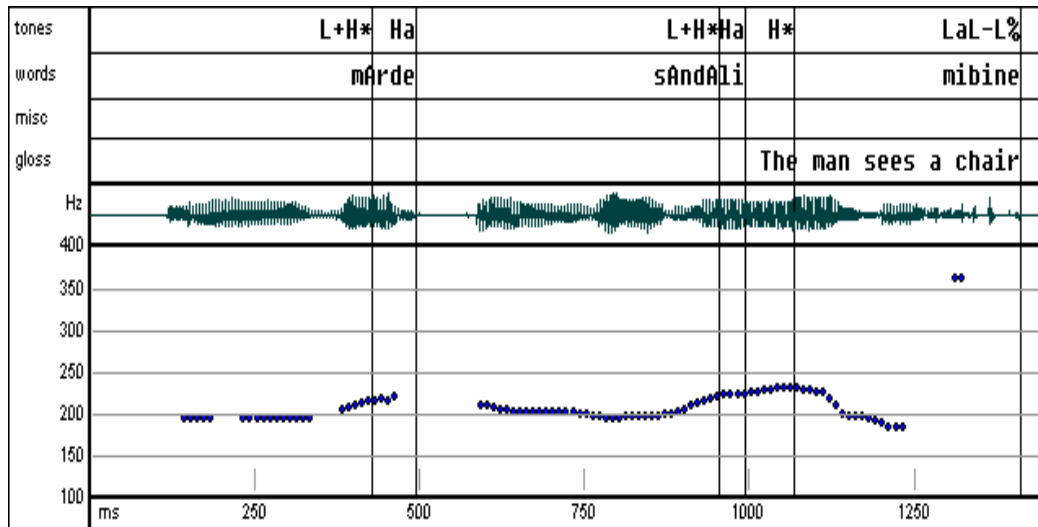
“For the voiceless consonants the vocal cords do not normally vibrate and thus these consonants have no fundamental voice frequency. Also, it is often difficult to identify the overtone structure in voiced consonants with strong friction. These considerations largely account for the breaks in charts of the fundamental voice frequency by the sound spectrograph. In

complex waves such as those for the vowels and voiced consonants of speech, the overtones are integral multiples of the fundamental. Thus the fundamental voice frequency can be plotted by tracing one of the harmonics and dividing the frequency scale by the corresponding harmonic numbers. It has been demonstrated that the perception of the pitch of a complex wave is influenced by its overtone structure. Since there is greater emphasis in the energy of higher for front vowels, the pitch of a high front vowel might seem higher than that of a high back vowel at the same fundamental voice frequency. It follows that there is not an exact correspondence between fundamental voice frequency and perceived tone and intonation but the correspondence is usually sufficient to be of aid in determining linguistic structure “.(Peterson,1954,7)

**2-The pitch of the voice:** Measuring pitch as a representation of intonation is a complex procedure. First we have to divide each sentence into its many “pure tones”.

Then these many tones should be kept to be shown at one single acoustic record.





Picture-6: An illustration on how to show the pitch of a sentence. (The intended focused word is indicated in all caps in the gloss tier and Farsi word order here, is subject-object-verb.)

As can be seen, when a word is accented, its F0 is raised relative to the default neutral case, and it becomes the highest pitch peak in the utterance. Furthermore, due to deaccenting and dephrasing following the focused word, the focus pitch accent becomes the nuclear pitch accent. (Scarborough, 2003, 4)

**3-The interval between the pitch Levels:** This is another component of intonation that is a subjective description of intonation and it has been widely used.

## **Chapter Three**

### **Persian Intonation**

Persian sentences are divided into a series of tone groups with each tone group containing one prominent stressed syllable. This stressed syllable makes a change in tone direction. Intonation groups can be divided into “suspensive” (with more to follow) and “final”. As can be seen in table-2 the basic final patterns are similar to those used in English with a fall typical for a completed statement, a rise for a yes/no question and a fall when an interrogative word is used. For the suspensive tone groups there is a rise to high tone on the stressed syllable, which is maintained to the end of the tone group. When carried over into English, some of these intonation patterns can produce an unusual high-pitched “whining” effect, which is disconcerting (Swan, 1987,132).

Hayati (1996) believes that if we only consider the sentence-final position we see some ground in Swan’s theory because the sentence-final intonation patterns of the two languages are quite similar (falling in statements and wh-questions, rising in yes/no questions, etc.) . But through his study, he found another element of interference which causes intonation problems of Persian learners. He believes that stress placement is the source of interference to intonation. (Hayati, 1996,85-86)

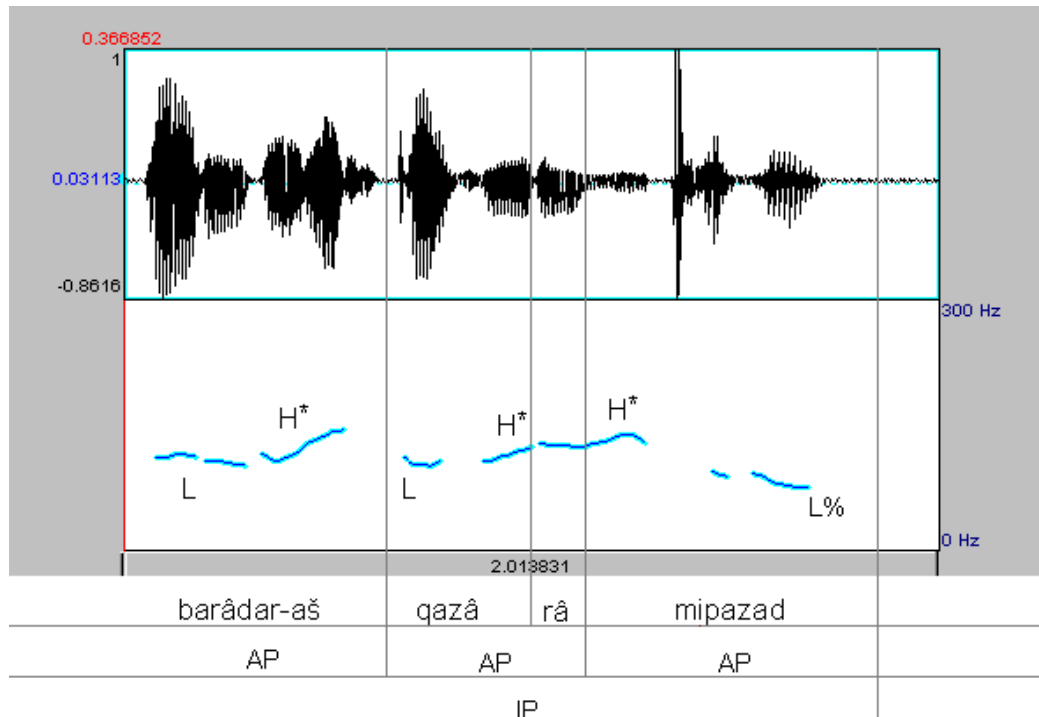
Grabe,E, Kochanski,G and Coleman,J. in their research “Quantitative Modelling of Intonational Variation” found that both dialect and utterance type can affect the shape of  $f_0$  but not the intonation patterns. They also found that differences in  $f_0$  between questions and statements were made throughout the utterance, in the shape of the contour and in the register. Traditional accounts of English intonation describe questions as having a final rise in  $f_0$  and statements as having a final fall. This account is valid in some dialects, but not in all.

They found in all dialects, average  $f_0$  was lowest in statements, higher in wh- and yes/no questions and highest in declarative questions. In all dialects,  $f_0$  sloped downwards in declaratives. Declarative questions were modelled as level or overall rising. In wh- and yes/no questions the slope did not contribute to the distinction between questions and statements. This observation has been made for a number of other languages and it may be evidence of an intonational universal. (Grabe, Kochansky and coleman,2002)

Mahjani (2003) in his MSc. Dissertation studied the intonation of Farsi extensively.

The rest of this chapter is an excerpt from his work as it is more comprehensive and precise than other works (quite scant in number) done for Persian prosody and intonation patterns.

“The default pitch accent in Farsi is the bitonal pattern L+H\* (figure 3-1), which corresponds to a sharp rise from a low point in the speaker’s range to a high peak featured on the accented syllable. This default pattern can also be realized as H\* when the pitch accented syllable is the first syllable of an Accentual Phrase. This mostly happens at end of the utterances i.e. the unmarked position of verbs (In Farsi it is usually the verbs which can get an accent on their first syllable.). (figure 3-1)



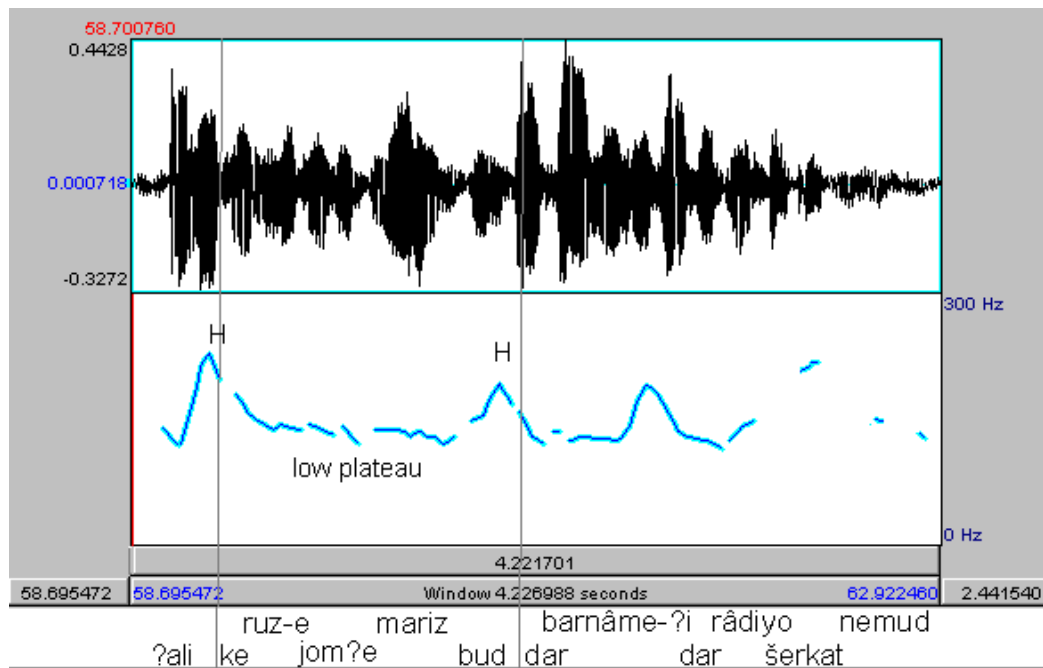
- barâdar-aš qazâ râ mipazad. (His brother makes the food.)

brother-his food Acc makes.

Figure 3-1: simple declarative sentence hierarchical structure and pitch accent type

(Acc= accentuated, SG= segments)

An idiosyncrasy of Farsi, which is worthy of mentioning, is the special tone used with relative clauses. The beginning and the end of the relative clause in this language are marked by a high tone and the middle of the clause shows a low plateau (This shows a great degree of mapping between syntax and phonology.). (figure 3-2)



- ?ali ke ruz-e jom?e mariz bud dar barnâme-?i dar râdiyo šerkat nemud.

ali who day-Ezf friday ill was in program-Indef in radio part-taking did-

3SG. (Ali who was ill on Friday participated in a program in radio.)

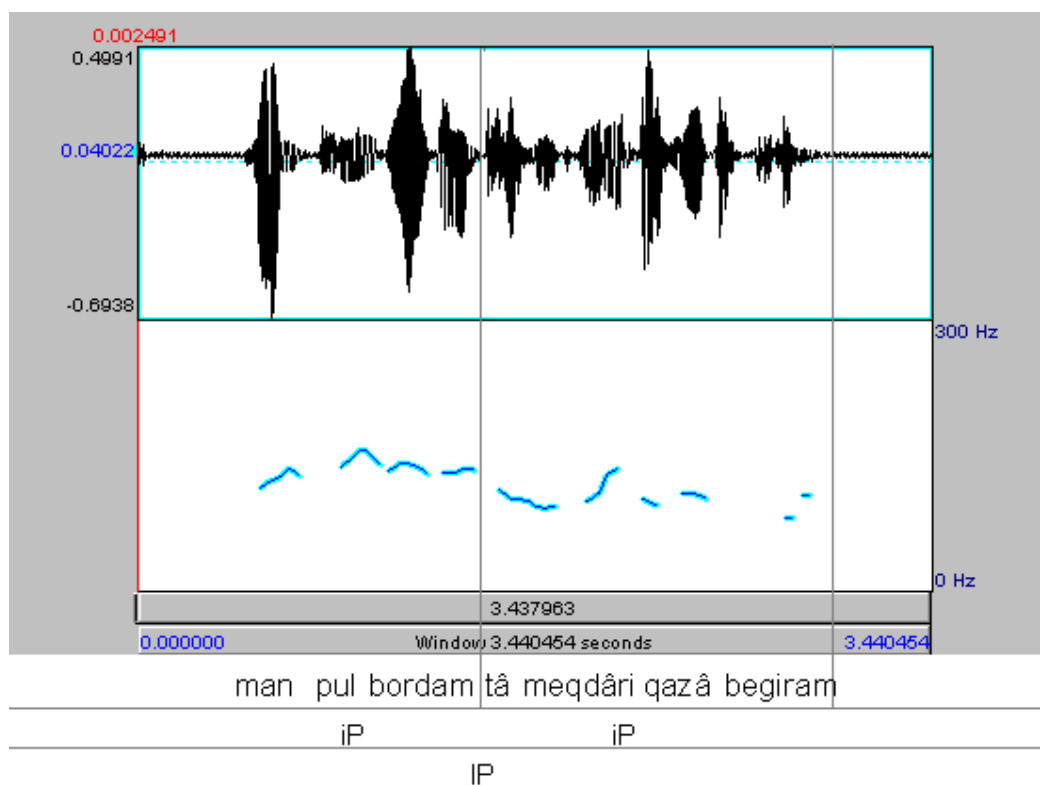
Figure 3-2: A relative clause in Farsi marked by two high tones at the beginning and end of the clause with a low plateau in the middle

### **Edge Tones**

Two tonally marked levels of phrasing may be suggested for Farsi; An intermediate phrase level and an intonational phrase level. The two phrase accents delimiting the edges of intermediate phrases in Farsi are:

L-: a low phrase tone, which controls the pitch between the last pitch accent and the edge of the intermediate phrase. If this stretch is not large, a fall of pitch to a low part in the speaker's range will be observed. If the stretch is long, L- creates a flat valley stretch between the nuclear and the edge of the intermediate phrase.

H-: a high phrase tone, which usually creates a slightly rising pitch for the stretch between a nuclear accent and the edge of the intermediate phrase (figure 3-3).



- man pul bordam tâ meqdâri qazâ begiram.

*I money took-1SG in order that some food get-1SG*

*(I am taking some money to get some food.)*

Figure 3-3: Example of an H tone with relatively higher pitch register iP

## Boundary Tones

The two boundary tones demarcating the edges of intonational phrases in Farsi are L% and H%. Intonational phrases are formed of at least one intermediate phrase. The last intermediate phrase occurring in an

intonational phrase will have its phrase accent followed immediately by the boundary tone. In other words, the last intermediate phrase accent combines with the intonational boundary tones to yield one of the configurations, namely L-L%, L-H%, H-L%. L% can be observed on the final word in declaratives and H% typically ends yes/no questions.

### **An Investigation of Farsi Intonation patterns**

#### **Declarative Sentences**

The sample declaratives mentioned here consists of some individual sentences with neutral focus, mostly covering the unmarked Farsi word order i.e. SOV. But there are a few sentences among them, which have marked word order like VSO, or SVO.

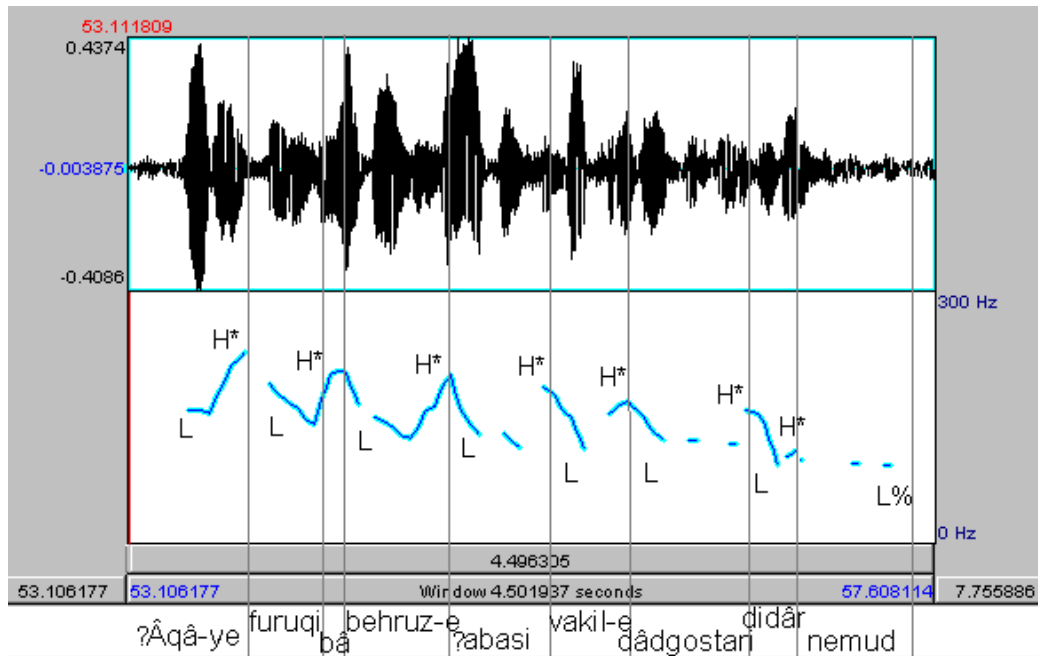
Nearly all simple declaratives investigated consist of accentual phrases with L+H\* pitch accent pattern. Each AP contains one or more content words. However the H tone in the right hand side of the AP is sometimes realized as L when the AP includes a focused word. Also if an AP is IP-final, the default H\* tone will be replaced by L\* followed by the boundary tone of the IP, either L% or H%.

By default in nearly all Farsi sentence types either declaratives, and interrogatives, or imperatives, the None-final APs preserve their default L+H\* pitch accents all through the sentence. This pitch accent usually is in agreement with the lexical stress pattern of Farsi content words. The final AP however occurs where usually the verb group stands by default.



Farsi verbs have quite complex behavior in choosing the place of their lexical stress. Considering this fact and the fact that the end of intonational phrase (here a simple sentence) is followed by a boundary tone makes the last AP get various patterns. However having a relatively unified pitch accent structure all through intonational phrases, various Farsi sentence types can mostly be differentiated according to type of their boundary tones.

Investigation of the declarative sentences in the sample corpora (each read by four different speakers including both sexes) suggests that in all Farsi statements  $f_0$  starts usually at the bottom of the speaker's pitch range and reaches the highest point in the speaker's pitch range for the given intermediate phrase within the first or second starting AP. In following the APs, again  $f_0$  drops in the first syllable of the AP to nearly the bottom of the speaker's pitch range, and then increases to the highest point in the speaker's pitch range at the boundary of the AP. However the peak of each subsequent H tone is lower than the preceding one. This leads to the establishment of a rather smooth declination in the  $f_0$  all through the statement. The longer the intonation phrase (here it corresponds to a declarative) the better this declination can be depicted. (Figure 3-4)



- ?Âqâ-ye furuqi bâ behruz-e ?abasi vakil-e dâdgostari didâr nemud.

Mr.-Ezfi forughi with behruz-Ezfi abasi lawyer-Ezfi judiciary meeting did.

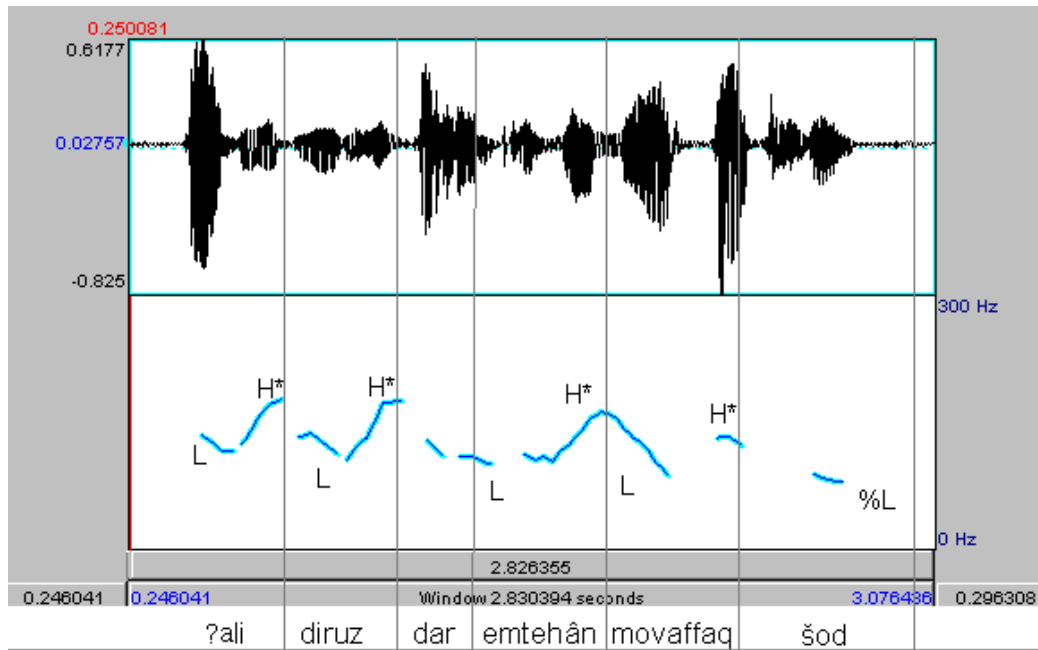
(Mr. Forughi met Behrooz Abassi, a lawyer of justice ministry.)

Figure 3-4: Example of a Farsi utterance with numerous instances of L+H\* pitch accent showing downstepping

## Types of Declarative Sentences

As it was mentioned above, in Farsi pitch accent patterns are the same whether the sentence is declarative or interrogative. So the sentence types are distinguished mainly by the boundary tone.

In Farsi in a neutral declarative sentence typically the nuclear pitch accent is an H\* on the last stressed syllable, followed by a L% boundary tone, and all pre-nuclear pitch accents are L+H\*. This pattern leads into a terminal intonation in which the pitch decreases at the end, thus it seems as if it were signaling the message is completed. (figure 3-5)



- ?ali diruz dar emtehân movaffaq šod.

*ali yesterday in exam success became-3SG.*

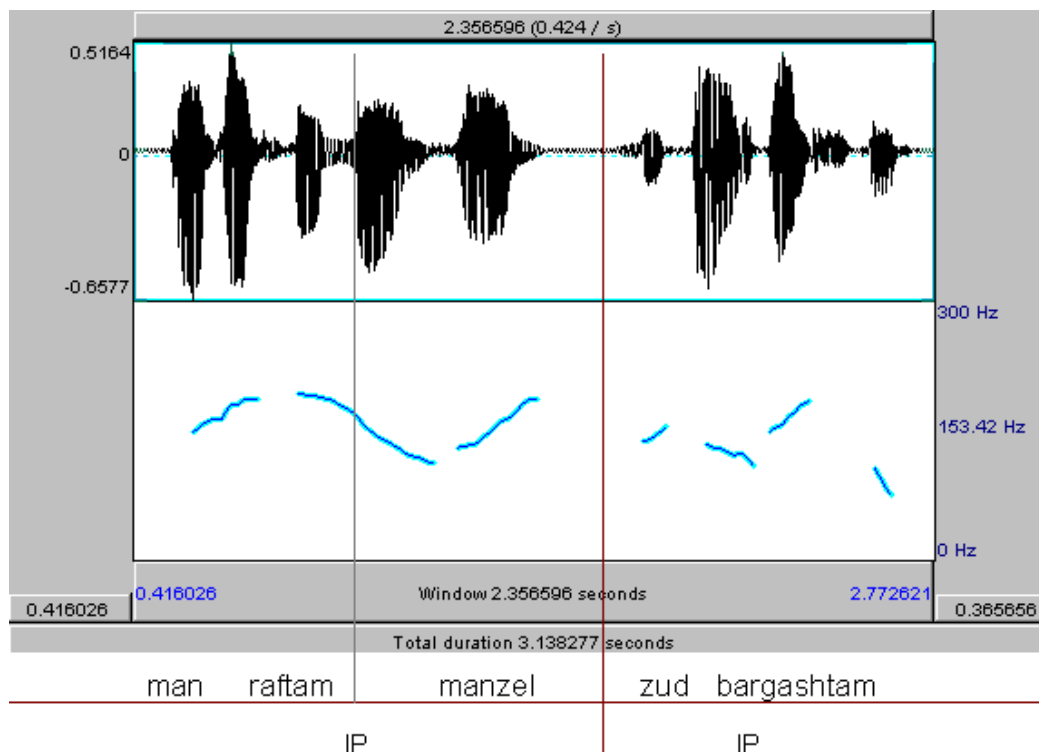
*(Yesterday Ali succeeded in the exam.)*

Figure 3-5: A typical neutral declarative with %L tone boundary

As majority of Farsi verbs have a compound construction e.g. consisting of a noun, adjective, etc. followed by a verb, the nucleus pitch accent usually occurs on the last syllable of the none verb element of the verb group.

Apart from this neutral declarative sentence pattern, which in fact occurs quite rarely in the natural flow of speech, there is a more common progressive intonation for declaratives in which throughout the declarative sentence the pitch either increases slightly or does not show any lowering at the end, thus leading to a high tone boundary %H. This

resembles the high tone boundary in yes/no questions, however here differences in pitch range and duration of the last stretched syllable differentiates between them . This signals the message is not completed yet. It is typically used as the sentence pattern for declaratives in longer instances of speech (such as a narration, etc.). (figure 3-6



- *man raftam manzel. zud bargashtam.*

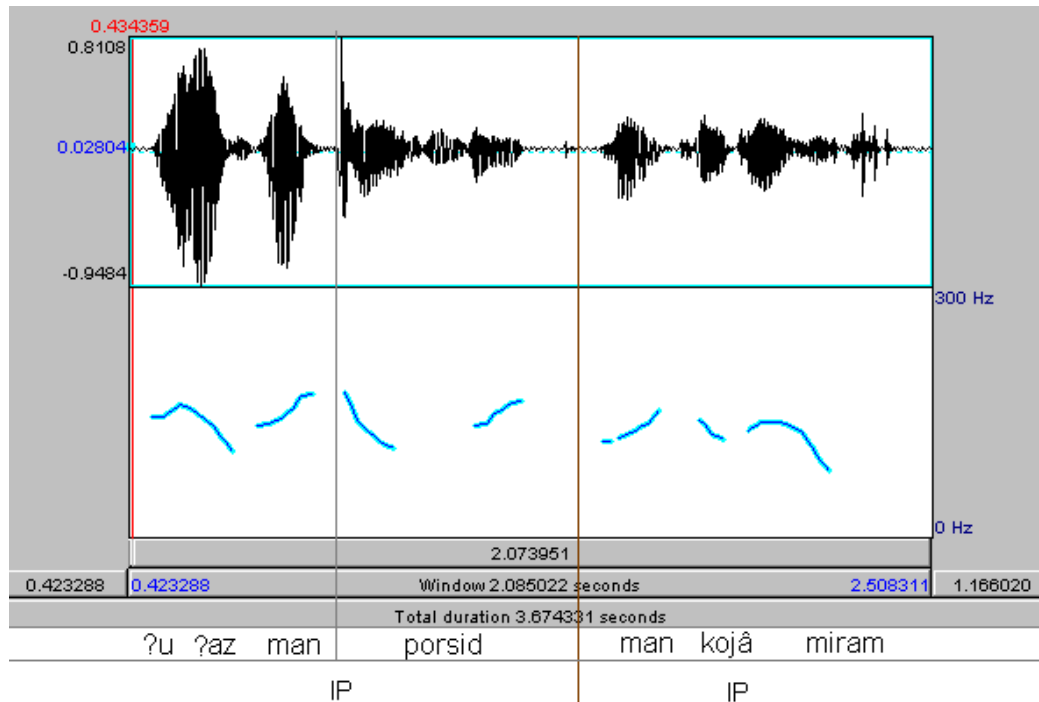
*I went-1SG home. soon returned-1SG.*

*(I went home. Soon I came back.)*

Figure3-6: A more common declarative with a raised pitch and a high tone boundary

Compound or complex sentences also get the same rising at their junctions i.e. a raised pitch at the end of the preceding clause and a falling

tone with a low boundary at the end of the last clause. At the same time some verbs usually are used with this progressive intonation pattern like “porsidan” (ask), “goftan” (say), “pâsox dâdan” (answer), etc. (figure 3-7)



- ?u ?az man porsid man kojâ miram.

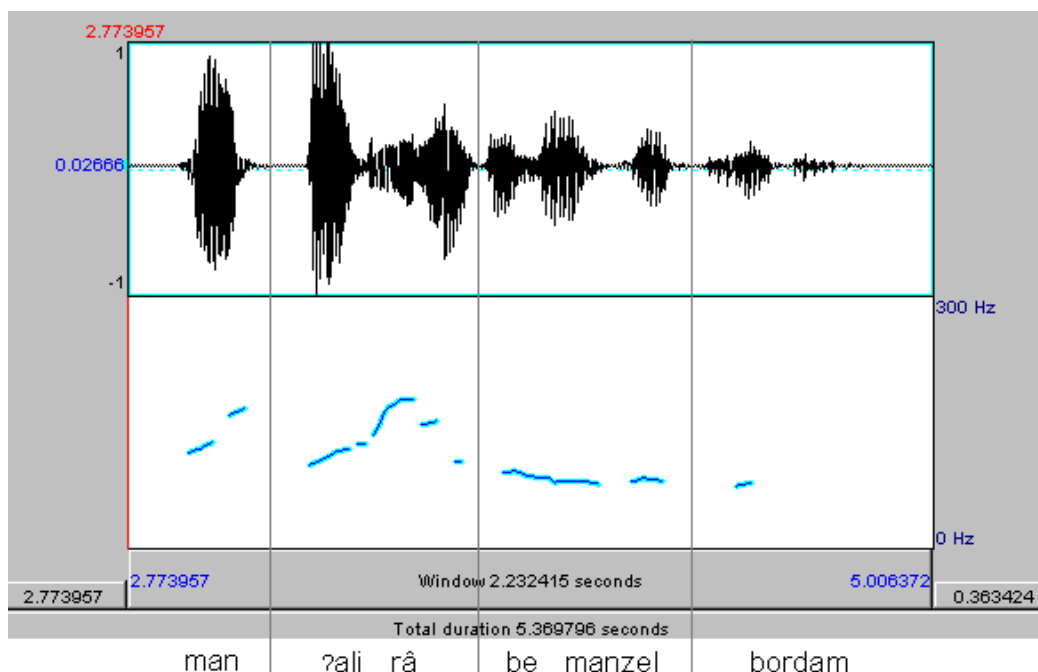
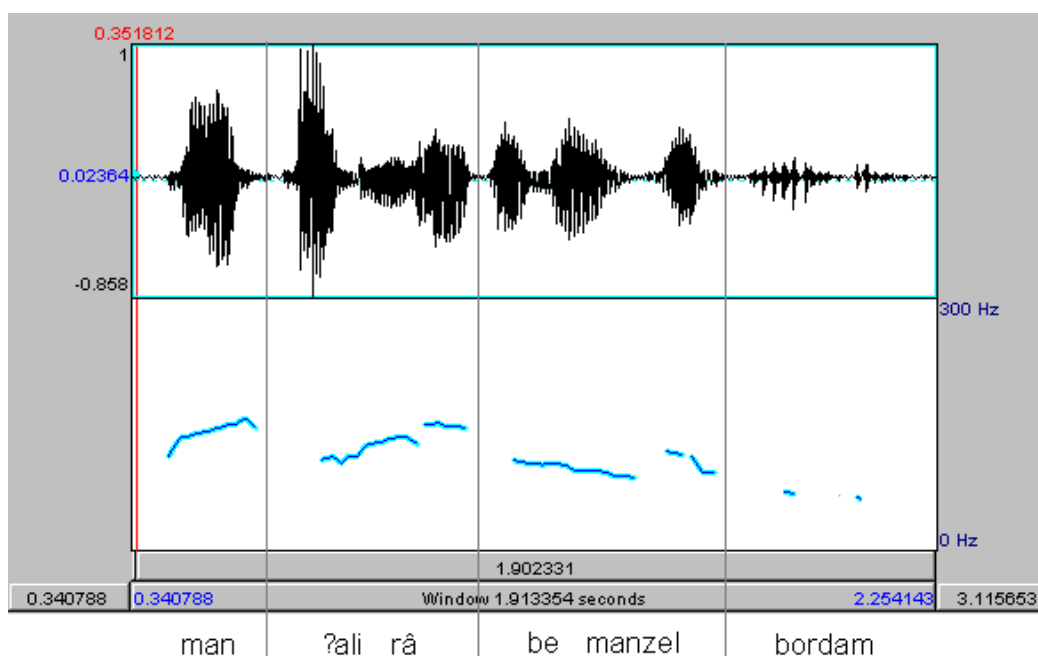
he from me asked-3SG I where go-1SG.

(He asked me where I was going.)

Figure 3-7: A progressive tone of a declarative initiated by the verb “porsidan” (ask)

**Declaratives with Focus**

In Farsi, like many other languages, focus affects the prosodic structure of the whole sentence. It assigns the nuclear pitch accent to the focus word. As a result all post-focal pitch accents will be de-accented. Furthermore, on the phonetic level, the focused word lengthens in duration considerably, while words before and after it usually shorten in duration. (figure 3-8)



(a) *man ?ALI râ be manzel bordam. (I took Ali home.)*

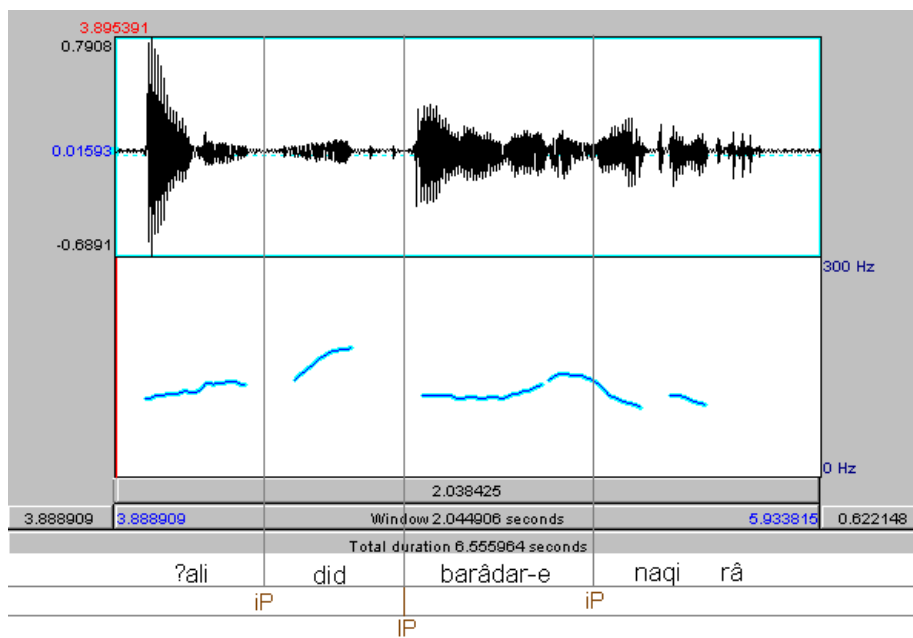
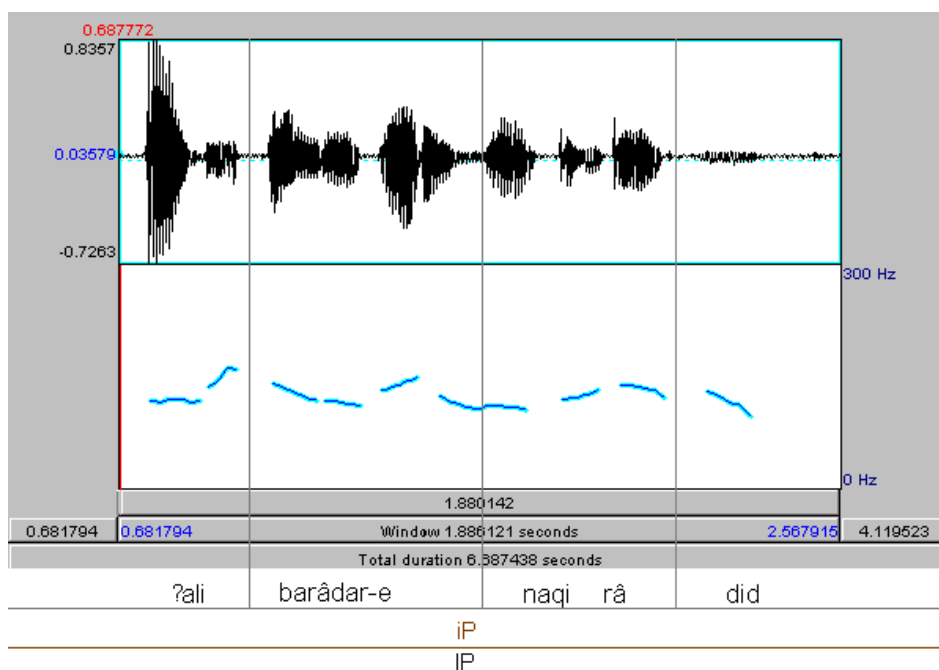
(b) *man ?ALI râ be manzel bordam. (I took Ali home.)I ALI Acc to home took-1SG.*

Figure 3-8: (a) a neutral declarative vs. (b) a declarative with a narrow focus on the object “?ali”

It is significant to mention that Farsi, being a free word order language, makes use of various devices (syntactic and prosodic) separately or in combination for focusing on the words and phrases of interest. This provides a relatively large number of potential word reorderings along with alternations in the prosodic gestures.,

Usually Farsi uses topicalization for emphasis on some words and phrases. When the topicalized word or phrase appears at the beginning of the sentence, it forms slightly different variations on the original intonational pattern of the sentence, thus in purely descriptive terms it creates a special kind of intonation. However usually the reordering of the sentence elements does not change the overall structure of intonational phrasing, e.g. the overall declination of a declarative sentence, the low boundary tone at the end of the phrase, etc.





(a) ?ali barâdar-e naqi râ did. (Ali saw the brother of Naghi)

(b) ?ali did barâdar-e naqi râ. (Ali saw the brother of Naghi.)

ali saw-3SG brother-Ezf naghi Acc

Figure3-9: Change of prosodic phrasing due to a different word order

## Interrogatives

In Farsi the yes/no questions are simply made by adding the word “?â” to the beginning of sentences. After insertion of “?â” the word order remains unaffected, however, in ordinary speech people only make such questions with using the proper rising intonation. The situation is a bit complicated for formation of wh-questions . Wh-words can be in situ or they can be moved overtly to the beginning of the sentence.

- nâder ki râ did? (Who did Nader see?)

Nader who Acc saw

- ki râ nâder did? (Who did Nader see?)

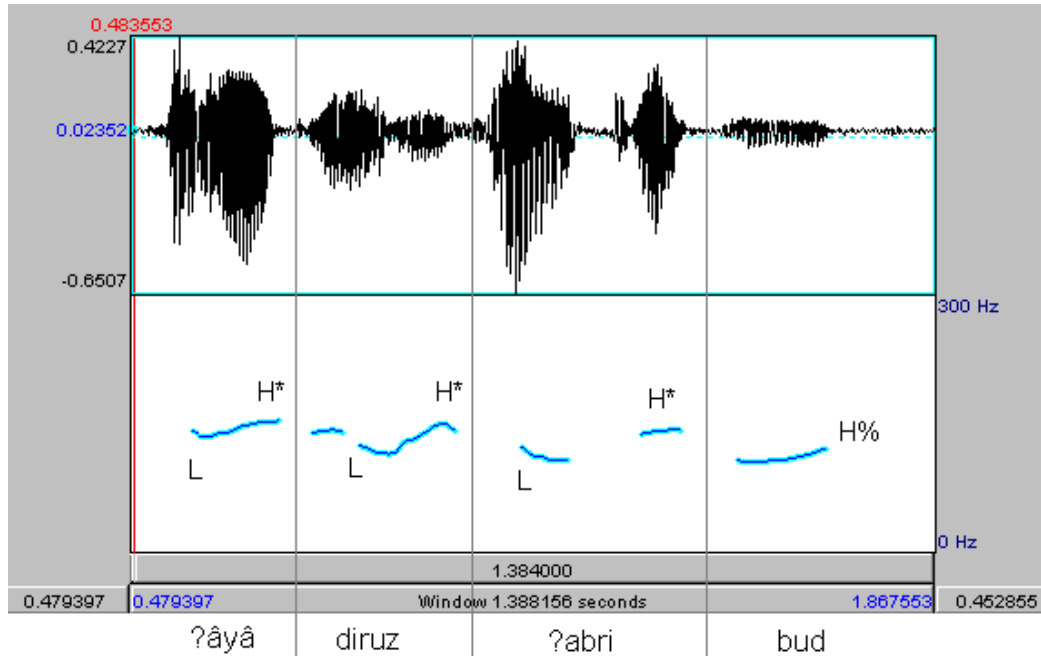
who Acc Nader saw

It is worth mentioning that such an option can only be seen in simple sentences. In Complex NPs, and nested clauses, overt extraction of the wh-element from an island results in total ungrammaticality.

## Yes/No Questions

In yes/no question generally the pitch slightly increases on the last syllable of the intonational phrase. This signals a wait for response from the speaker hence maintains a continuous flow of conversation between two interlocutors. In this way yes/no questions are different from wh-questions firstly due to the fact that they take a high boundary tone at the end of the phrase (sometimes the last syllable gets an LH boundary) while in whquestions the boundary tone is almost always L%, secondly because

in yes/no questions contrary to wh-questions there is no deaccenting of any words all through the utterance (figure3-10).



- ?âyâ diruz ?abri bud? (Was it cloudy yesterday?)

*Q-particle yesterday cloudy was-3SG?*

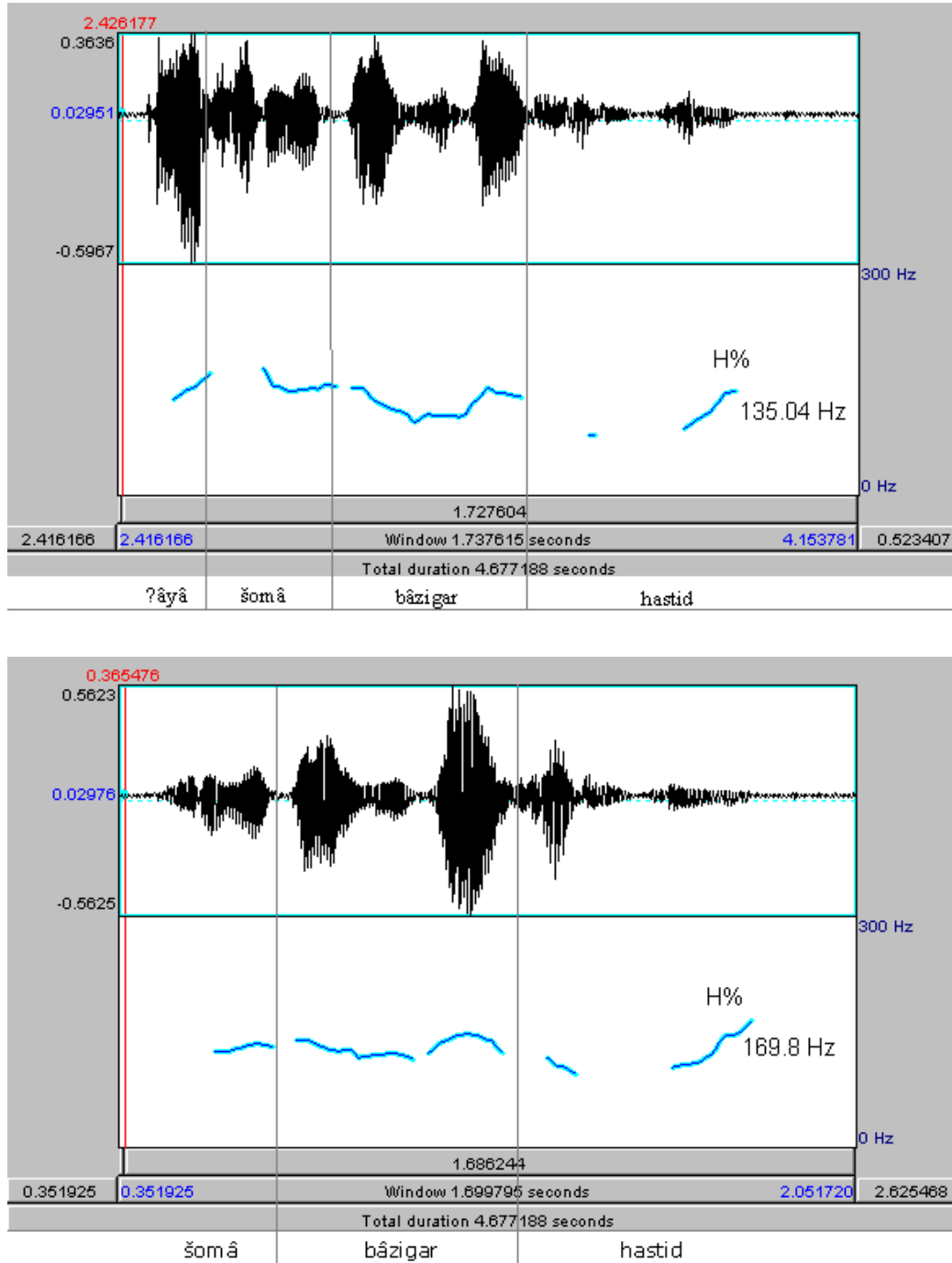
Figure3-10: A typical Farsi yes/no question

Figure 3-10 shows a typical Farsi yes/no question with the default L+H\* pitch accents and the final H% boundary tone spreads over the last syllable (here the verb “bud”). Just like declaratives there is a declination all through the utterance but with a much shorter downsteps.

Investigation of many sample recorded utterances reveals that the lower

bound of the pitch range in yes/no questions is higher than that of the lower bound of the pitch range of neutral declaratives (and obviously that of wh-questions' because due to deaccenting which happens after the wh-word, wh-questions have intrinsically much lower lower-bound pitch limit).

The question particle “?” which almost always only comes at the beginning of a yes/no question is not comparable to wh-words in wh-questions as far as its function and its effect on the utterance is concerned. Here “?” does not enforce any sort of deaccenting to rest of the intonational phrase. In fact All APs after “?” preserve their original pitch accents. However the presence of this particle at the beginning of the utterance make the rest of the utterance take a slightly lower register compared to the pitch register of the corresponding question without question particle “?”. Another difference is that the H% of such questions also takes a significant higher register compared to that of normal question (figure 3-11).



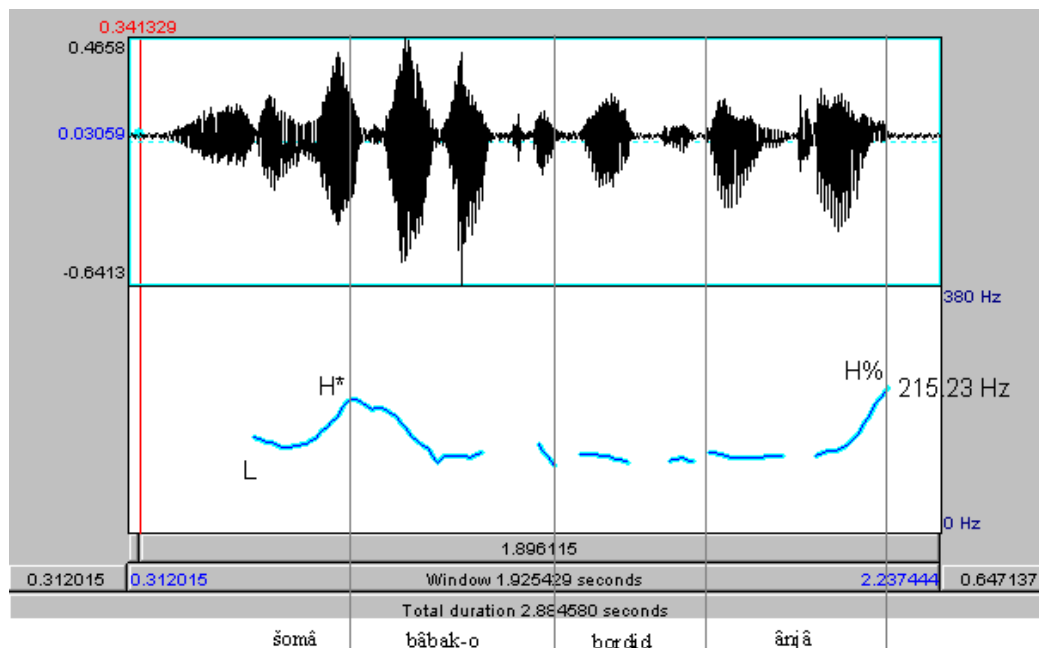
(a) “?âyâ” šomâ bâzigar hastid? (Are you an actor?)Q-particle you actor are?

(b) šomâ bâzigar hastid? (Are you an actor?)you actor are?

Figure 3-11: A normal yes/no question (a) vs. an echo question (b). The latter has slightly higher pitch register and a significant higher H%.

Just like declaratives with focus here a narrow focus on any word affects the prosodic structure of the whole utterance. It assigns a prominent pitch accent to the focus word, and consequently all the post-focal pitch accents will be de-accented.

However because of existence of a high boundary tone right at the end of the utterance, there is a small but noticeable upset in the low deaccented plateau area up until the very final syllable in which suddenly there is sharp rise of the pitch toward the H% boundary right at the end of the phrase. The interesting thing about this final rise is its unbelievably high pitch range at the boundary tone (in case of male speakers for example the H% tone could expand up to 220 Hz). (figure 3-12)



- ŠOM\_ bâbak-o bordid ânjâ? (Did YOU take Babak there?)

you babak-Acc took-2PL there?

Figure3-12: An echo yes/no question with focus

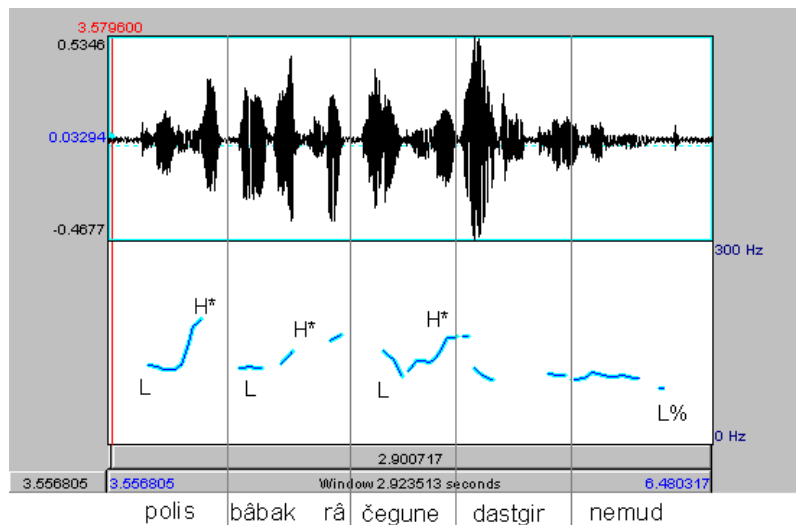
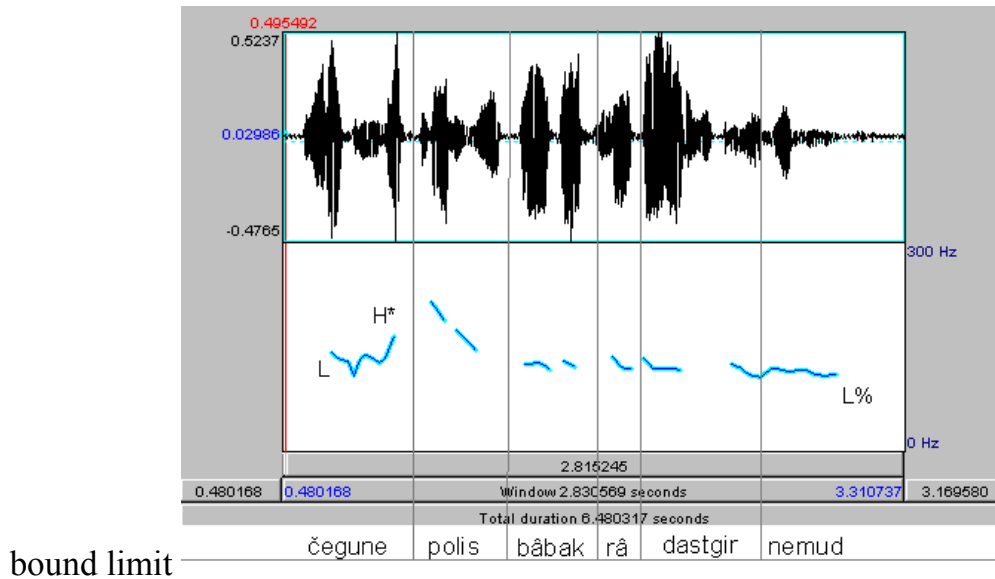
## **Wh-Questions**

Wh-questions in general are tonally marked in a similar, though not quite identical, way as the narrow focus cases I explained in the previous section on declaratives. Where wh-word occurs in the utterance, the pitch increases on the stressed syllable of that wh-word.

When the wh-word comes at the beginning of an utterance, the remaining of the utterance will become deaccented, but in case the wh-word occurs anywhere else, the phrases before the wh-word preserve their original pitch accents but the ones following the wh-word all will be deaccented (figure 3-13).

After the process of deaccenting, one can still trace the weak deaccented L+H patterns, however here the pitch movements are so lowered in their pitch range that L and H tones become almost identical situating at the same level. This resembles the narrow focus case in declarative sentences. Yet one can differentiate between these two (wh-questions and declaratives with focus) on the basis of some acoustic evidence, i.e. the focus word uses a greater register expansion than the wh-word, consequently the after-focus-deaccenting in declaratives with focus is more severe than the deaccenting which happens after the wh-word, thus

in the former case the f0 gets a noticeable lower frequency in its lower



(a) \_cegune polis bâbak râ dastgir nemud? (How did the police arrest Babak?)

(b) \_cegune polis bâbak râ dastgir nemud? (How did the police arrest Babak?)

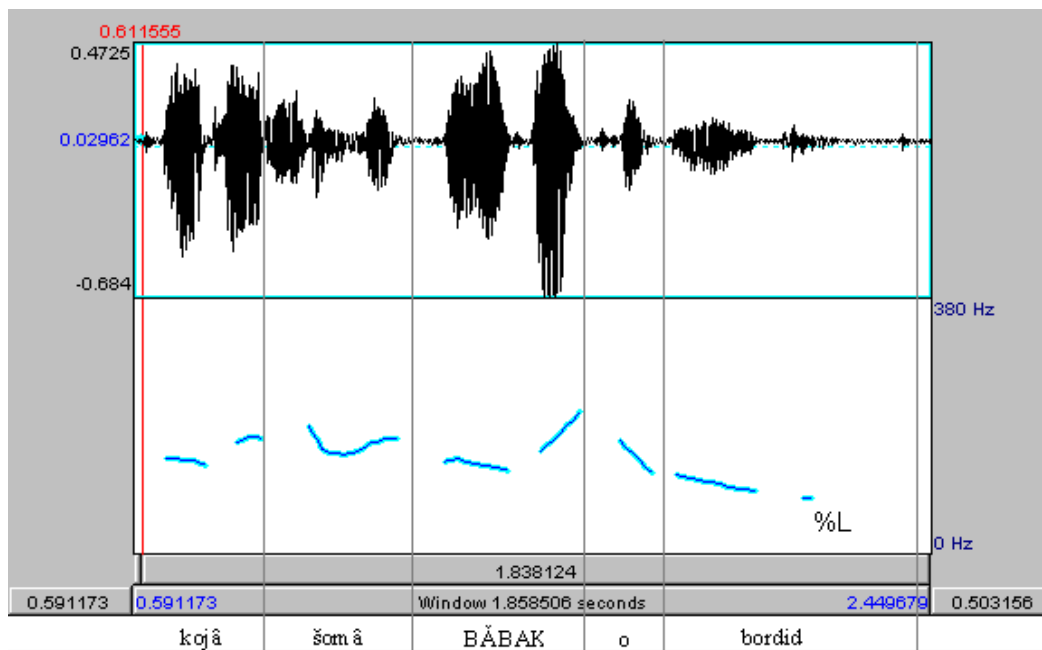
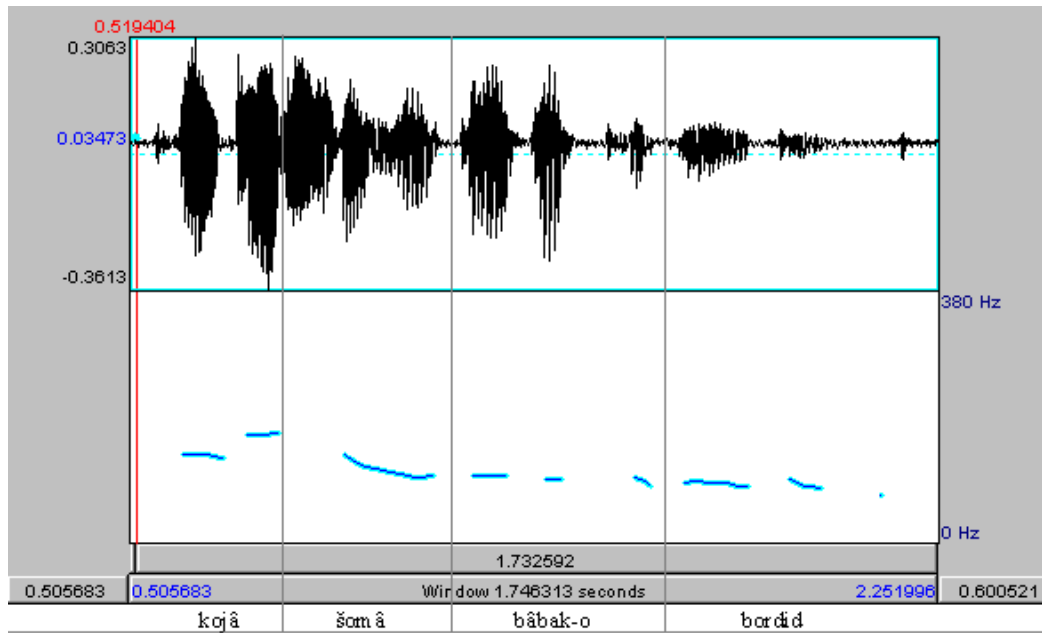
how polis babak Acc arrest did-3SG?

Figure3-13: Loss of pitch accents after a wh-word in a Wh-question, (the words before wh-word all preserve their original pitch accents.)



**Focus in Wh-Questions**

Focus in wh-questions is a little bit complicated. In fact it is quite rich in terms of the presence of various prosodic features and intonational events. (figure 3-14).



(a) *kojâ šomâ bâbak-o bordid?* (Where did you take Babak to?)

where you *babak-Acc* took-2PL?

(b) *kojâ šomâ B\_BAK-o bordid?* (Where did you take Babak to?)

where you *babak-Acc* took-2PL?

Figure 3-14: mechanism of handling focus in a *wh*-question

In this example sentence:

(a) is a normal wh-question with wh-word coming right at the beginning of the sentence.

As it can be observed the stressed syllable of the wh-word gets prominence and as a normal wh-question the remaining of the utterance become deaccented. Finally at the final syllable there is a very slight fall leading to the final L% boundary tone (the slightness is because of deaccenting process). In the second sentence

(b), we expect “šomâ” (you) to be deaccented right after the wh-word, but because of focus on the object, i.e. “bâbak”, there is a suspension over the deaccenting process of wh-word.

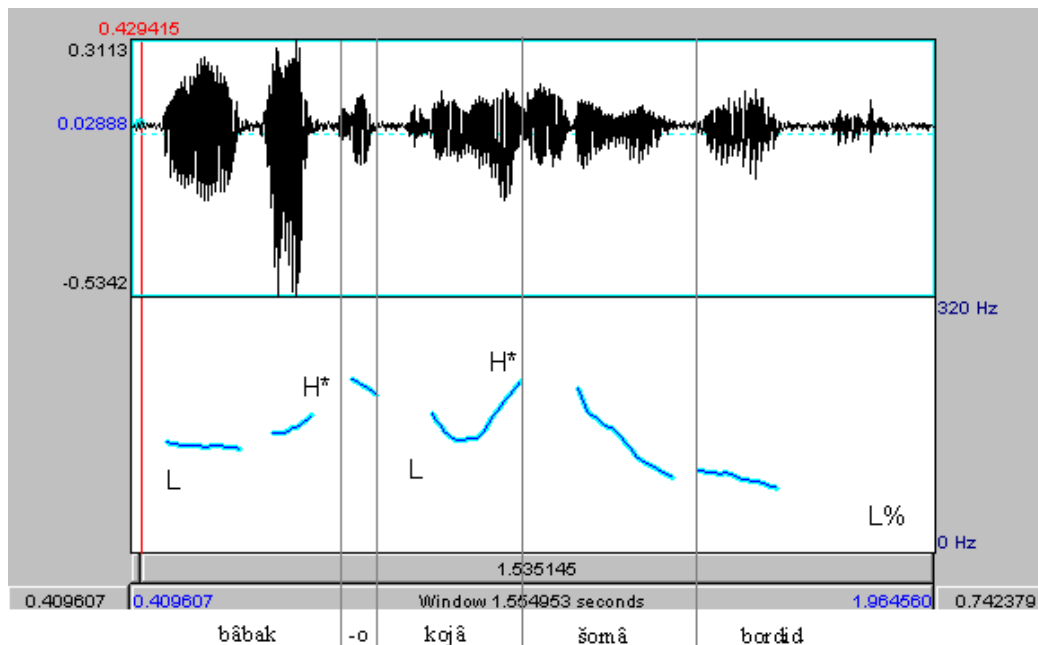
What happens next is very interesting. The first phrase “kojâ šomâ” ends up forming like an independent iP accompanied by the expected high tone on its final syllable in such situations<sup>1</sup>. Now the rest of the utterance starts right with the focus word “bâbak”. It gets the nucleus accent of the phrase and quite expectedly deaccents the final verb. This leads to a relatively steep fall merging rapidly with the final low boundary tone right at the last syllable of the utterance.

Either focused word or wh-word can cancel out the deaccenting process of the other one on the basis of their position, i.e. whichever occurs later, it will cancel out the deaccenting process of the other one which precedes it.

Figure 3-15 confirms this claim. If we topicalized the focus (here “bâbak”) we can observe clearly how this mechanism is handling the coexistence of these two intonational events.

In this example the focus word “bâbak” precedes the wh-word. What happens is the local cancellation of the deaccenting property of the focus (much more like the previous example). The focus word has its normal prominence thus preserving its L+H\* pitch accent as expected. The deaccenting process of focus almost gets started at the Acc marker “râ” (here pronounced as “o”), but soon it gets cancelled by the presence of wh-word.

Now here the wh-word becomes prominent and as we expect it deaccent the rest of the phrase. Finally we have the normal low boundary tone, which is typical of such utterances. The process is much the same as the previous example with one difference, i.e. there is no intonational hint to show the need for a compulsory pause before the second prominent word (here the wh-word). Thus no rephrasing of the utterance is expected.



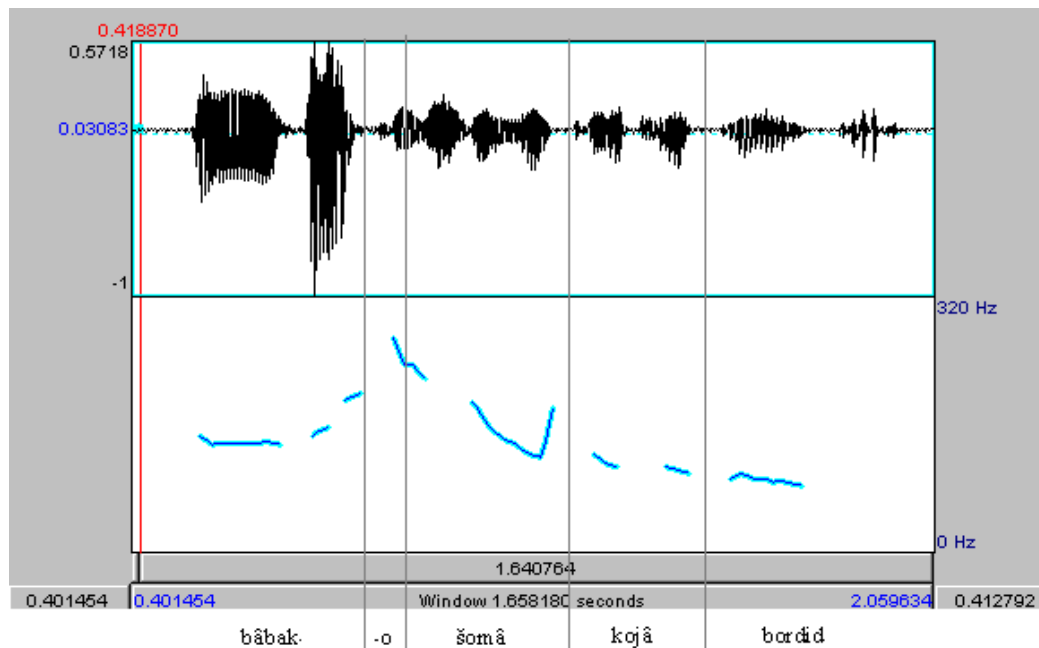
- B\_BAK-o kojâ šomâ bordid? (Where did you take Babak to?)

*babak-Acc where you took-2PL?*

Figure 3-15: The precedence of focus to the *wh*-word in a *wh*-question and the mechanism of handling this coexistence

The last example reveals yet another aspect of this complicated phenomenon, i.e. when the subject “šomâ” comes between the focus and the *wh*-word. The focus word has again its normal prominence thus preserving the default L+H\* pitch accent as expected. The deaccenting process of focus again gets started at the Acc marker “râ” (here pronounced as “o”), but contrary to what we expect this time it gets cancelled out on the subject “šomâ”, i.e. the subject stay out prominent and rejects the deaccenting. In fact it also preserves the default L+H\* pitch accent. Now the interesting thing is that this time the deaccenting starts again right at the *wh*-word, i.e. contrary to our expectation the *wh*-

word becomes deaccented. Finally comes the normal low boundary tone at the end of the phrase.



- *B\_BAK-o šomâ kojâ bordid?* (Where did you take Babak to?)

*babak-Acc you where took-2PL?*

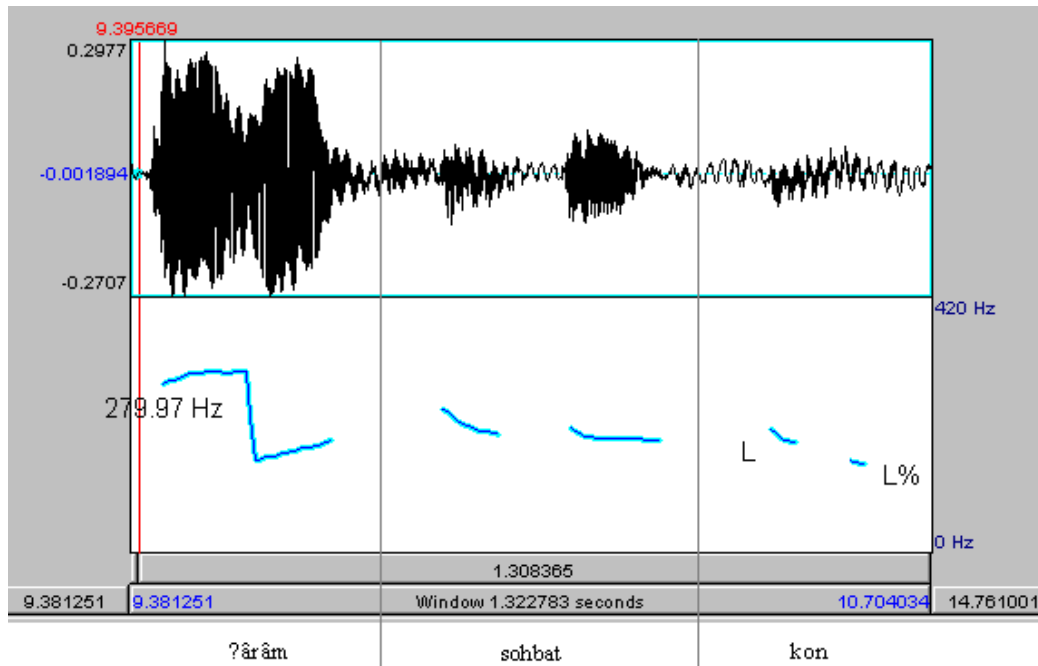
Figure 3-16: A more complicated mechanism of treating focus and *wh*-word in a *wh*question

## Imperative Sentences

The intention behind using imperative sentences is mostly to order or request some one to do something or to prevent him/her from doing it (either for you, somebody else or for him/herself). You can also use them when you want to give someone directives or advice. It may be expressed as a polite request, sometimes it can be an impolite command, and other times it may take the form of a suggestion. Usually however in daily social conversations very rarely people use an assertive direct command

for communication due to the strong sense of impoliteness that it implies. So if somebody uses an imperative, it usually takes the form of a request, in that case he or she will pick up some polite adverbs like “lotfan” (please), etc. and makes the tone of his/her speech less assertive. But the point is that usually in Farsi a speaker has the option of using some other structures (such as an echo yes/no question) to fulfill this requirement and avoid using imperatives at all.

Imperatives take a short pitch range, in Farsi their average lower bound  $f_0$  is higher than that of neutral declaratives, and also their higher bound  $f_0$  is lower than that of declaratives. So all tones distribute within a quite narrow band frequency. Tones are quite flat, and there are not really many falling or rising tones within each AP, however the whole pitch contour gradually and slightly declines, thus giving a smooth and even  $f_0$  movement. At the very end of the utterance, however, there is an L tone shortly merging into a lower boundary tone (L%). Usually in imperative utterances speaker's voice starts from a higher pitch right at the beginning of the utterance (figure 3-17)



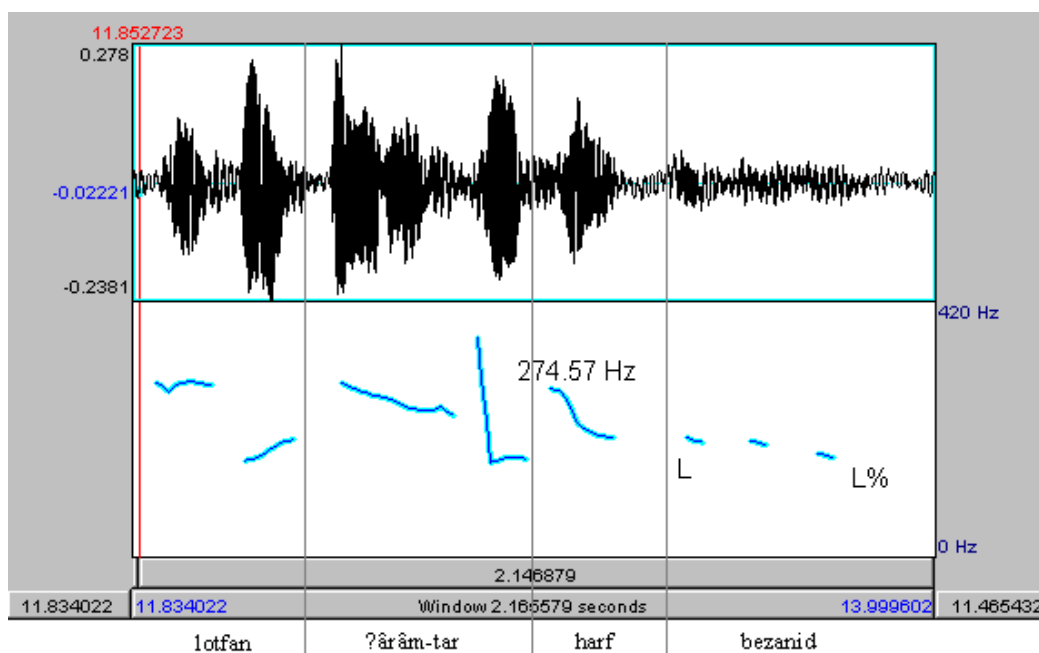
- ?ârâm sohbat kon. (Speak slowly.)

slowly speech do.

Figure 3-17: An imperative sentence. It has the typical characteristics: a narrow bandfrequency, higher starting point  $f_0$ , and relatively flat pitch contour.

However in polite requests, parts of a Farsi imperative sentence resemble exactly a declarative sentence preserving the default pitch accent pattern. But the verb group preserves the typical structure of imperative.(figure 3-18)





- lotfan ?ârâm-tar harf bezanid. (Please speak more slowly.)

please slowly-more speech beat.

Figure 3-18: A polite request, only the final part of the utterance (verb group) truly represents the real imperative intonation.

## Exclamatory Sentences

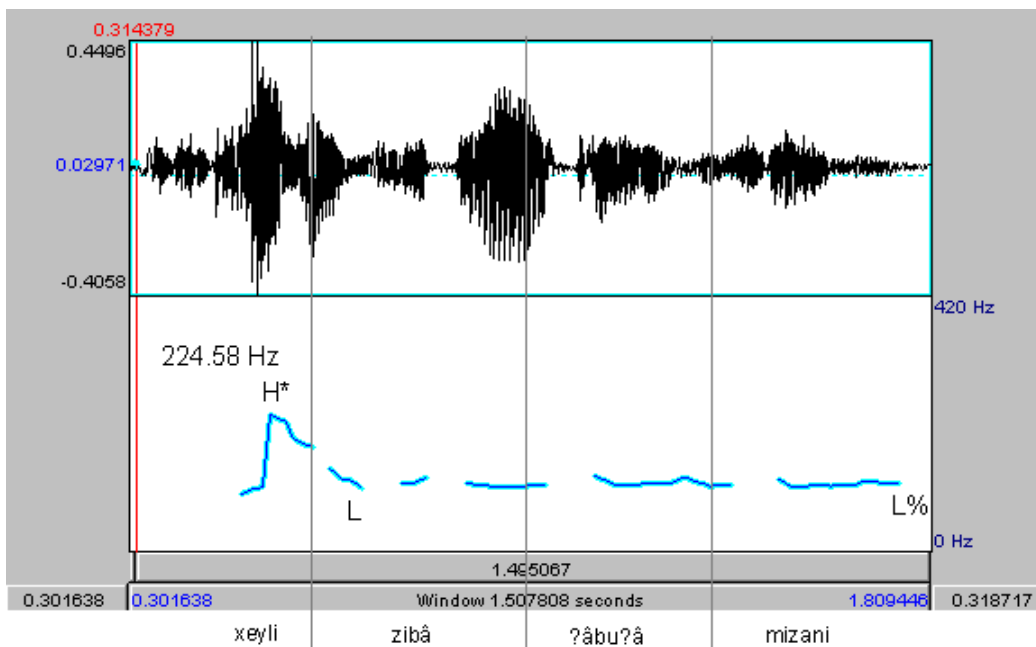
In Farsi exclamatory sentences express a wide range of emotions, passions and good or bad feelings like love or hate. That is why such sentences take a wide variety of different forms and structures. This makes them hard to study and any observations regarding their behavior should only cautiously be framed as some general and typical representation of such sentence types.

Authentic data can only be collected in natural real situations when people truly are impressed by some event and express themselves verbally at once. We briefly look at two very common types of Farsi

exclamation sentences namely; declarative exclamations, and wh-exclamations.

### Declarative Exclamations

In Farsi it is possible to use a declarative sentence to express an exclamation. A general pitch contour of such structures resembles the following example.(figure 3-19)



- xeyli zibâ ?âbu?â mizani! (You play oboe very nicely!)

very nice oboe beat-2SG!

Figure 3-19: A declarative exclamatory sentence

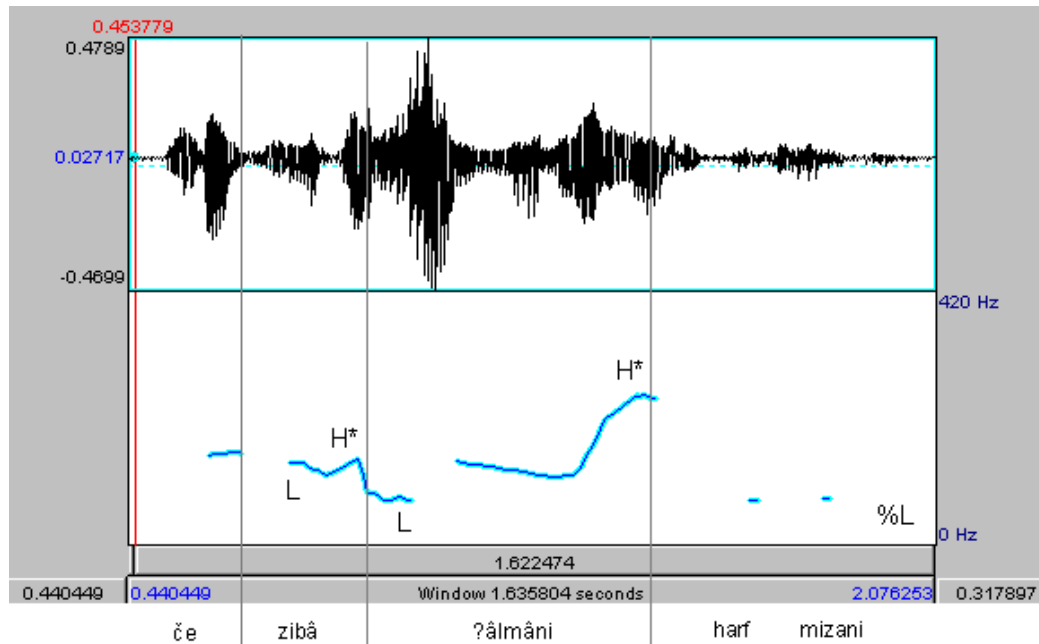
The pitch accent of the first AP, which is usually an adverb (this modifies an adjective, another adverb or a nominal which follows it immediately),

is realized as an H\*, that is the voice of speaker suddenly rises from the lower bound of his/her frequency to the limit of its upper bound (here about 225 Hz). Then there is a deaccenting all through the sentence until the last syllable combines with the L%. Such sort of deaccenting in Farsi declaratives is not a rare phenomenon (we have already seen the case of narrow focusing). But it appears that in other cases, this first AP is always realized as “L+H\*” i.e. the default pitch accent in Farsi (in case the focus occurs in the first AP in non exclamatory cases). Duration and the relative value of the frequency of H\* is also a good signal (This is relative to individual speakers. No absolute value in this regard can be suggested.). It is worth mentioning that this is only one of the ways an exclamation can be realized within a declarative.

### **Wh-word Exclamations**

Another structure, which Farsi speakers usually use to express their exclamations with, consists of a wh-word, which comes at the very beginning of an utterance. Usually an adverb that modifies the verb of the sentence (like the example below), or a noun phrase follows the wh\_word. Almost never the wh-word gets the prominence, either the adverb or the noun, which follows the wh-word gets the nucleus pitch accent and the rest of the utterance up to the very end will be deaccented. For example in the following sentence there are two possibilities; either “zibâ” (nice) will get the main pitch accent of the exclamation or the

noun “?âlmâni” (German). Figure 4.15 depicts the latter case. (the focused word usually have an exaggerated duration)”



- \_e zibâ ?âlmâni harf mizani! (How nicely you speak German!)

what nice German speech beat-2SG!

Figure3-20: A typical wh-word exclamation sentence

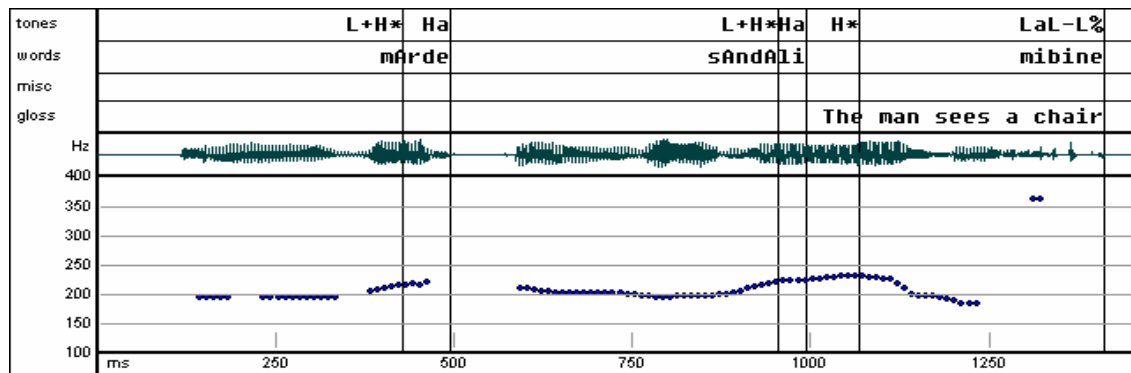
**(An excerpt from MSc dissertation on “An Instrumental Study of Prosodic Features and Intonation in Modern Farsi (Persian)” by Behzad Mahjani and Supervied by Robert Ladd .Department of Theoretical and Applied Linguistics University of Edinburgh.September 2003**

On the contrary, and based on hierarchically structured prosodic model, Scarborough believes that the main determinant of a sentence intonation in Persian is the “focus” of the sentence used to refer to *emphasis triggered by context* and not through an embedded characteristic in a

word or sentence (like English or like what we observed in Mahjani's work).

“Since focus in wh- questions, relative clauses, ‘know that’ constructions, negation, and verb-initial yes/no questions all involve deaccenting, it is appealing to be able to account for them all with a single phonological mechanism. We can consider them all types of focus, broadly construed.”(Scarborough, 2003)

**Her diagrams of Persian Intonation are presented here:**



*Figure3-21: A man's declarative statement (no focus)*

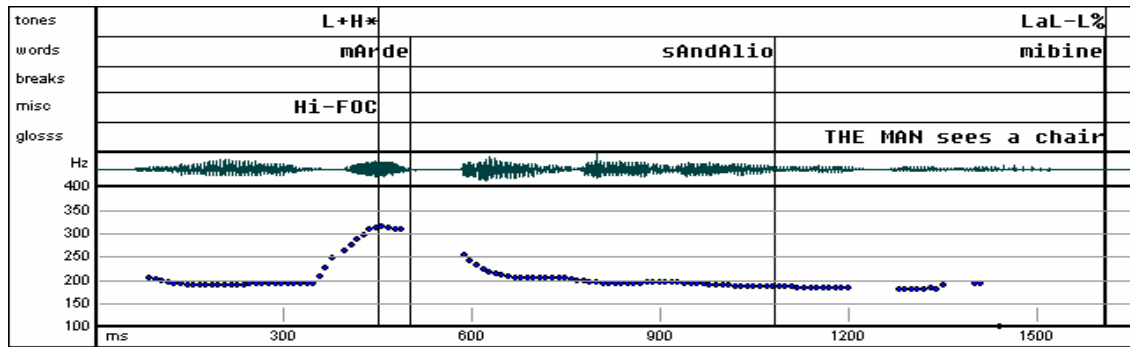


Figure3-22: a man's declarative statement with subject focus

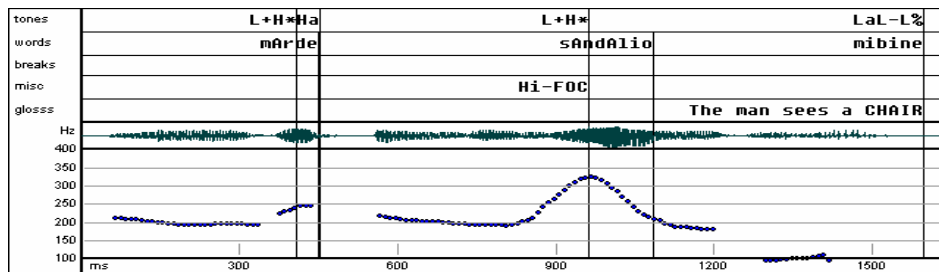


Figure3-23: A man's declarative statement with object focus

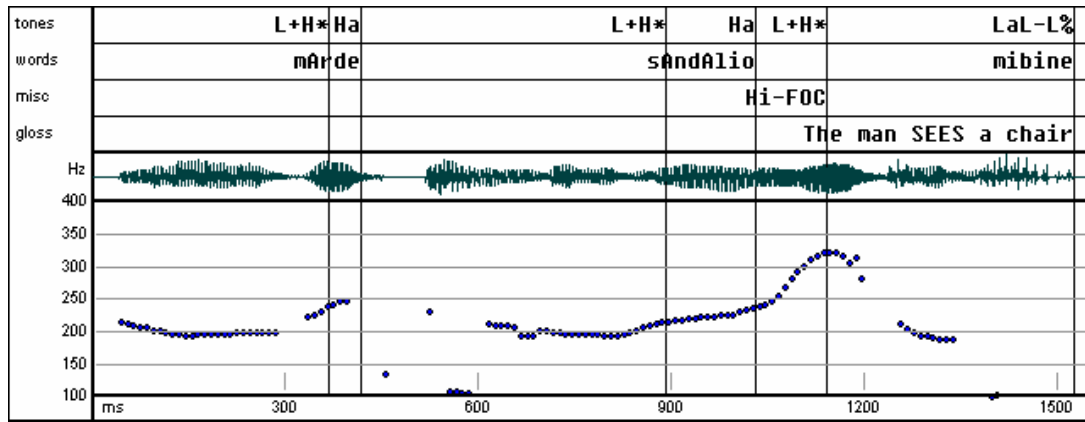


Figure3-24: A man's declarative statement verb focused

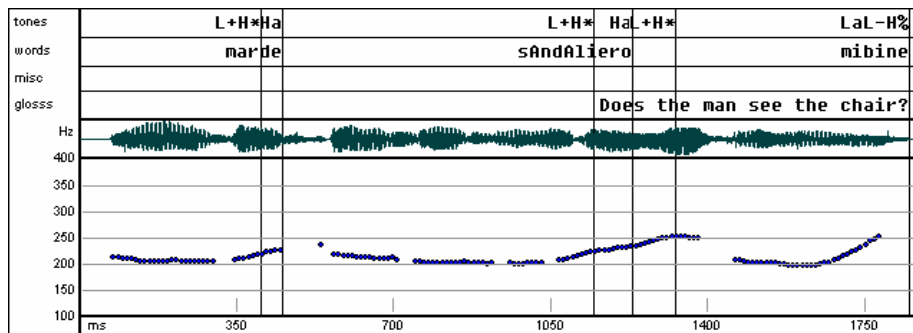


Figure3-25: A man's yes/no question statement(no focus)

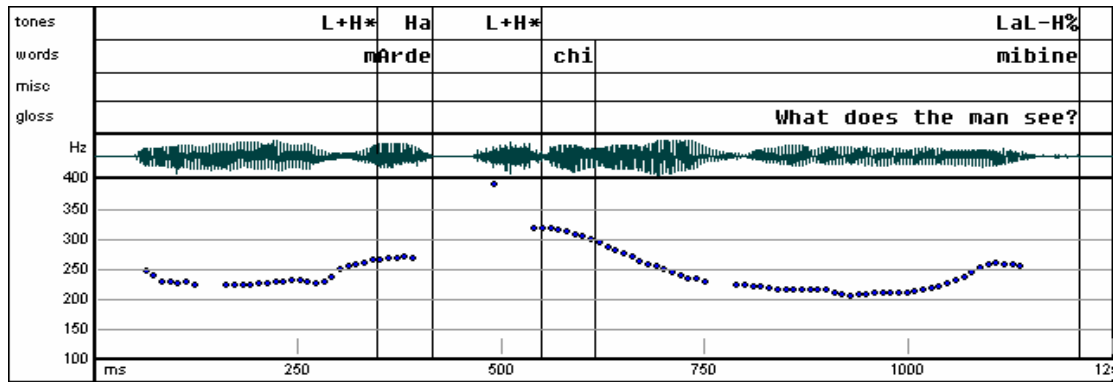


Figure3-26: A woman's Wh question statement(no focus)

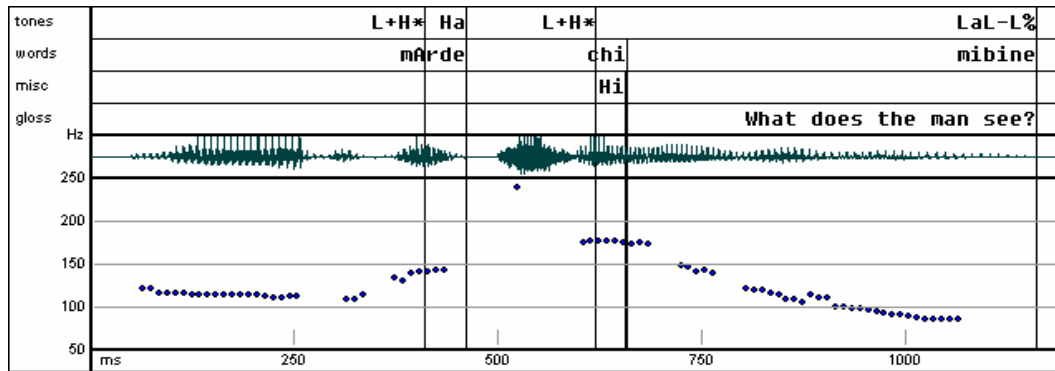


Figure3-27: A man's Wh question statement(no focus)



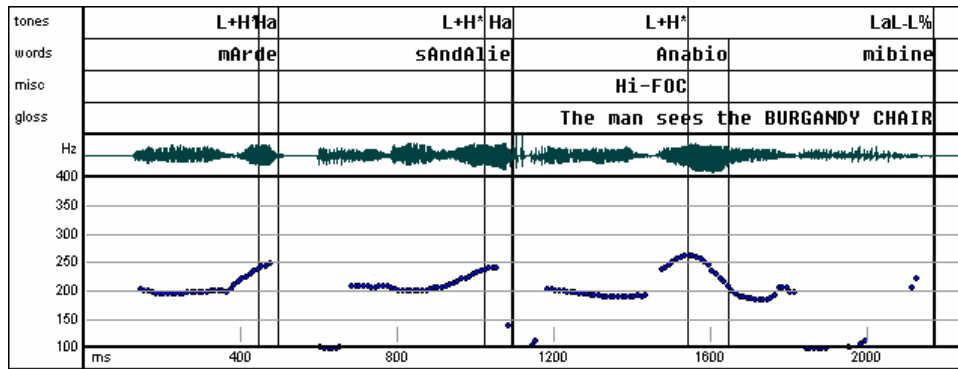


Figure3-28: A woman's statement of a two-word object sentence

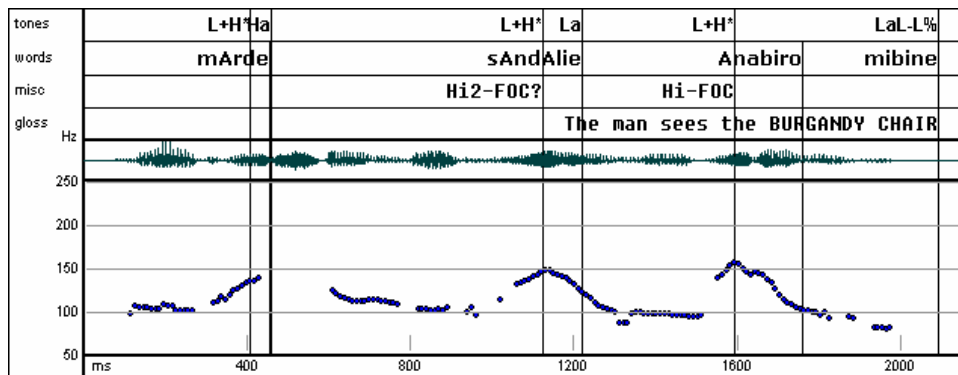
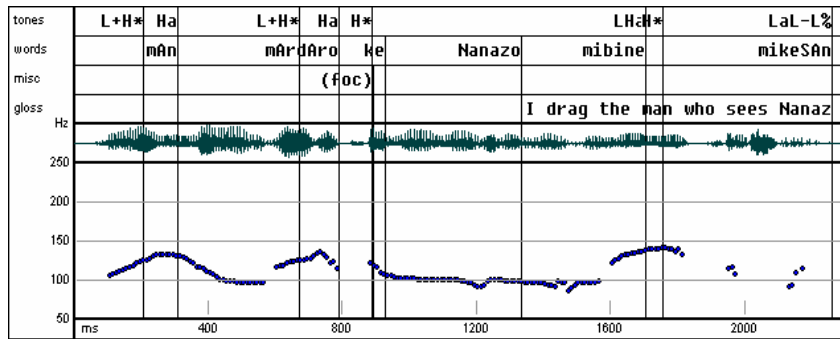


Figure3-29: A man's statement of a two-word object sentence



*Figure3-30: A man's statement of a relative clause*

## Chapter Four

### English Intonation

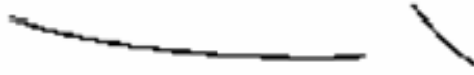
English has a number of intonation patterns which add conventionalized meanings to the utterance: question, statement, surprise, disbelief, sarcasm, teasing.

An important feature of English intonation is the use of an intonational accent (and extra stress) to mark the **focus** of a sentence. Normally this focus accent goes on the last major word of the sentence, but it can come earlier in order to emphasize one of the earlier words or to contrast it with something else.

We know that English has four pitch phonemes, not four fixed points on a musical scale but four relative levels. The intervals between them change in amplitude from speaker to speaker and from situation to situation even for the same speaker. In the sentence, "He is a student.", spoken with a normal mid-pitch at the beginning, a high pitch on –STU- and dropping to a low pitch at the end, we hear three of those four pitches in operation.


A woman would normally render the same sentence at a higher general pitch than a man. And both would raise the level of the pitches and widen the height of the intervals under various circumstances when attempting to communicate with some one across the street. They would lower the

pitches and keep them close together when speaking to someone next to them in a dentist's waiting room.



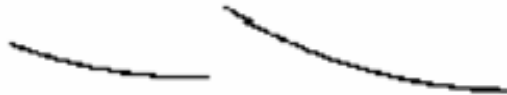
Nancy bought a new house on Thursday.

Intonation contour for a statement with stress on Thursday.




Nancy bought a new house on Thursday.

Intonation contour for a statement with stress on house.



Nancy bought a new house on Thursday.

Intonation contour for a statement with stress on new



Nancy bought a new house on Thursday.

Intonation contour for a statement with stress on first word, Nancy.

- a- Nancy bought a new house on Thursday.(stress on Thursday)
- b- Nancy bought a new house on Thursday.(stress on house)
- c- Nancy bought a new house on Thursday.(stress on new)
- d- Nancy bought a new house on Thursday.(stress on Nancy)

Many languages mark contrastive emphasis like English, using an intonational accent and additional stress.

Many other languages use only syntactic devices for contrastive emphasis, for example, moving the emphasized phrase to the beginning of the sentence.

- Instead of
  - I want a **car** for my birthday. (as opposed to a bike)
- you would have to say something like:
  - A car I want for my birthday.
  - It's a car that I want for my birthday.

Listeners who speak the second type of language will not necessarily interpret extra pitch and volume as marking emphasis. Listeners who don't speak the second type of language will not necessarily interpret a different word order as marking emphasis (as opposed to assuming that the speaker doesn't know basic grammar).

## Questions

The normal intonation contours for questions in English use:

- final rising pitch for a Yes/No question
  - Are you coming today?
- final falling pitch for a Wh-question
  - When are you coming? Where are you going?

Using a different pattern typically adds something extra to the question.

E.g., falling intonation on a Yes/No question can be interpreted as abruptness. Rising intonation on a Wh-question can imply surprise or that

you didn't hear the answer the first time and are asking to have it repeated.

These patterns too can be different across languages. Even small differences can be important:

reading the one language with the intonation pattern appropriate to the other can give rise to entirely unintentional effects: English with Russian intonation sounds unfriendly, rude or threatening, to the native speaker of English; Russian with an English intonation sounds affected or hypocritical to the native speaker of Russian. (Russel,2000)

## Summary statement

### Contrasting English Intonation patterns with Persian

Statement	English	Farsi
A normal matter –of-fact report (declarative intonation) Affirmative/negative and questions beginning with a question word	M-H-L  (Swan,1973,48)	M-M-L  (Swan,1973, 132)
Yes/no questions	M-H-X  (Swan,1987,133)	M-M-H  (Fallahi,1992,113)
Tag questions for confirmation	M-H-L ,H-L  (ELS,1973,73-74)	M-M-L, M-L  (Swan,1973,132)
Tag questions for asking	M-H-M ,M  (ELS,1973,73-74)	M-M-L ,M-L  (Swan,1973,132)
Incomplete sentence [A clause beginning with a connecting word (before, when, since, because, if)]	M-H-L  (Swan,1987,133)	M-M-H  (Swan,1973,132)
Direct address (like: Good evening Mr. Johnson.)	M-H-M-H  (ELS,1973,5)	M-M-L  (Swan,1973,132)

*Table-2: Contrasting English Intonation patterns with Persian.*

( *L stands for low/M stands for mid /H stands for high /X stand for extra high*)

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